UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 1

IN THE MATTER OF: LEEDS METAL SUPERFUND SITE LEEDS, MAINE MAINE CENTRAL RAILROAD COMPANY Respondent. Proceeding Under Sections 104, 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9604, 9607 and 9622.	U.S. EPA Region 1 CERCLA Docket No. 01-2014-0026 **ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

TABLE OF CONTENTS

ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY

I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement and Order on Consent ("Settlement Agreement") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and Maine Central Railroad Company ("MEC" or "Respondent"). The Settlement Agreement concerns the preparation and performance of a remedial investigation and feasibility study ("RI/FS") at or in connection with the Leeds Metal Superfund Site located generally at Blue Rock Road in Leeds, Androscoggin County, Maine ("Site") and payment of Future Response Costs incurred by EPA in connection with the RI/FS.

2. This Settlement Agreement is issued under the authority vested in the President of the United States by Sections 104, 107, and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9604, 9607, and 9622 ("CERCLA"). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2926 (Jan. 29, 1987), and further delegated to Regional Administrators on May 11, 1994, by EPA Delegation Nos. 14-14-C (Administrative Actions Through Consent Orders) and 14-14-D (Cost Recovery Non-Judicial Agreements and Administrative Consent Orders). These authorities were further redelegated by the Regional Administrator of EPA Region 1 to the Director of the Office of Site Remediation and Restoration on September 3, 1996 by Region 1 Delegation Nos. 14-14-C (Administrative Actions Through Consent Orders) and 14-14-D (Cost Recovery Non-Judicial Agreements and Administrative Consent Orders).

3. In accordance with Sections 104(b)(2) and 122(j)(1) of CERCLA, 42 U.S.C. §§ 9604(b)(2) and 9622(j)(1), EPA notified the U.S. Department of the Interior, the U.S. Department of Commerce-National Oceanic and Atmospheric Administration, and the Maine Department of Environmental Protection on April 17, 2014, of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to the natural resources under Federal and/or State trusteeship.

4. EPA and Respondent recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by Respondent in accordance with this Settlement Agreement do not constitute an admission of any liability. Respondent does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the findings of fact in Section V and the conclusions of law and determinations in Section VI. Respondent agrees to comply with and be bound by the terms of this Settlement Agreement and further agrees that it will not contest the basis or validity of this Settlement Agreement or its terms.

II. PARTIES BOUND

5. This Settlement Agreement applies to and is binding upon EPA and upon Respondent and its successors and assigns. Any change in ownership or corporate status of a

Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter such Respondent's responsibilities under this Settlement Agreement.

6. Respondent is jointly and severally liable for carrying out all activities required by this Settlement Agreement.

7. Respondent shall ensure that its contractors, subcontractors, and representatives receive a copy of this Settlement Agreement and comply with this Settlement Agreement. Respondent shall be responsible for any noncompliance with this Settlement Agreement.

8. The undersigned representative of Respondent certifies that he or she is fully authorized to enter into the terms and conditions of this Settlement Agreement and to execute and legally bind Respondent to this Settlement Agreement.

III. STATEMENT OF PURPOSE

9. In entering into this Settlement Agreement, the objectives of EPA and Respondent are: (a) to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, by conducting a Remedial Investigation as more specifically set forth in the Statement of Work ("SOW") attached as Appendix A to this Settlement Agreement; (b) to identify and evaluate remedial alternatives to prevent, mitigate, or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, by conducting a Feasibility Study as more specifically set forth in the SOW in Appendix A to this Settlement Agreement; and (c) to recover response and oversight costs incurred by EPA with respect to this Settlement Agreement.

10. The Work conducted under this Settlement Agreement is subject to approval by EPA and shall provide all appropriate and necessary information to assess Site conditions and evaluate alternatives to the extent necessary to select a remedy that will be consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 ("NCP"). Respondent shall conduct all Work under this Settlement Agreement in compliance with CERCLA, the NCP, and all applicable EPA guidances, policies, and procedures.

IV. DEFINITIONS

11. Unless otherwise expressly provided in this Settlement Agreement, terms used in this Settlement Agreement that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Settlement Agreement or its appendices, the following definitions shall apply:

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675.

"DOJ" shall mean the United States Department of Justice and its successor departments, agencies, or instrumentalities.

"Day" or "day" shall mean a calendar day. In computing any period of time under this Settlement Agreement, where the last day would fall on a Saturday, Sunday, or federal or state holiday, the period shall run until the close of business of the next working day.

"Effective Date" shall mean the effective date of this Settlement Agreement as provided in Section XXIX.

"EPA" shall mean the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

"EPA Hazardous Substance Superfund" shall mean the Hazardous Substance Superfund established by the Internal Revenue Code, 26 U.S.C. § 9507.

"Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports, and other deliverables submitted pursuant to this Settlement Agreement, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Settlement Agreement, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Section XII (Access and Institutional Controls) (including, but not limited to, the cost of attorney time and any monies paid to secure access, including, but not limited to, the amount of just compensation), Paragraph 40 (emergency response), Paragraph 83 (Work takeover), and the costs incurred by the United States in enforcing the terms of this Settlement Agreement, including all costs incurred in connection with Section XV (Dispute Resolution), and all litigation costs. Future Response Costs shall also include Agency for Toxic Substances and Disease Registry ("ATSDR") costs regarding the Site.

"Institutional Controls" shall mean non-engineered instruments, such as administrative and/or legal controls, that help to minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land and/or resource use. Examples of institutional controls include easements and covenants, zoning restrictions, special building permit requirements, and well drilling prohibitions.

"Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

"Leeds Metal Property" or the "Property" shall mean the approximately 36-acre parcel located on Blue Rock Road in Leeds, Androscoggin County, Maine, identified on the Town of Leeds Tax Assessor's Office as Map #4, Lot #38.

"Leeds Metal Superfund Site Special Account" shall mean the special account, within the EPA Hazardous Substance Superfund, established for the Site by EPA pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3).

"ME DEP" shall mean the Maine Department of Environmental Protection, and any successor departments or agencies of the State

"NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

"Paragraph" shall mean a portion of this Settlement Agreement identified by an Arabic numeral or an upper or lower case letter. References to paragraphs in the SOW will be so identified, e.g., "SOW Paragraph 15."

"Parties" shall mean EPA and Respondent.

"RCRA" shall mean the Resource Conservation and Recovery Act, also known as the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992.

"Respondent" shall mean Maine Central Railroad Company ("MEC").

"Section" shall mean a portion of this Settlement Agreement identified by a Roman numeral. References to sections in the SOW will be so identified, e.g., "SOW Section V."

"Settlement Agreement" shall mean this Administrative Settlement Agreement and Order on Consent, the SOW, all appendices attached hereto (listed in Section XXVII) and all documents incorporated by reference into this document including without limitation EPA-approved submissions. EPA-approved submissions (other than progress reports) are incorporated into and become a part of the Settlement Agreement upon approval by EPA. In the event of conflict between this Settlement Agreement and any appendix or other incorporated documents, this Settlement Agreement shall control.

"Site" shall mean the Leeds Metal Superfund Site encompassing approximately 36 acres of land located on Blue Rock Road in Leeds, Androscoggin County, Maine (defined above as the Leeds Metal Property), and all areas where hazardous substances have come to be located.

"State" shall mean the State of Maine.

"Statement of Work" or "SOW" shall mean the Statement of Work for development of a RI/FS for the Site, as set forth in Appendix A to this Settlement Agreement. The Statement of Work is incorporated into this Settlement Agreement and is an enforceable part of this Settlement Agreement as are any modifications made thereto in accordance with this Settlement Agreement.

"United States" shall mean the United States of America and each department, agency, and instrumentality of the United States, including EPA.

"Waste Material" shall mean (a) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (b) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (c) any "solid waste" under Section 1004(27) of RCRA,

42 U.S.C. § 6903(27); and (d) any "hazardous substance" or "hazardous waste" under 38 MRSA § 1362.

"Work" shall mean all activities Respondent is required to perform under this Settlement Agreement, except those required by Section XIV (Retention of Records).

V. FINDINGS OF FACT

12. The Site includes the Leeds Metals Property, approximately 36 acres of land on Blue Rock Road in Leeds, Androscoggin County, Maine, and all areas where hazardous substances have come to be located. Respondent owns the Leeds Metals Property, which it acquired in the mid-1800s. The Rumford Branch line of Respondent's railroad crosses the eastern portion of the Property. For many years, Respondent leased portions of the Property to various entities.

13. From approximately 1969-1984, various lessees conducted auto-shredding and scrap metal recovery operations at the Property. During that time period, junked automobiles were disposed of and shredded at the Property. Auto fluff, consisting of non-ferrous materials generated during the automobile shredding process, was also stockpiled at the Property. Gasoline and other fluids from junked cars were disposed of directly onto the ground, and as many as 100 drums were staged along the tree line in the southern part of the Property. Currently, the Property contains four large auto shredder residue debris piles, former building foundations, and scrap metal/debris and drums.

14. Sampling reveals the presence of the following hazardous substances in soils and/or groundwater at the Site: polychlorinated biphenyls ("PCBs"); volatile organic compounds ("VOCs"), including, tetrachloroethene ("PCE") and trichloroethene ("TCE"); and metals (lead, arsenic, cadmium, and chromium).

15. Some of the hazardous substances listed in Paragraph 14 have been found in the approximate 40,000 cubic yards of auto fluff waste collected in four large piles; in the former Operations Area used by the auto-shredding and metal recovery businesses at the Property; and, in a contaminated groundwater plume.

16. Residents living near the Property use private wells as their primary drinking water source. There are no public drinking water supply wells in Leeds, Maine. Five private drinking water supply wells located south of the Property have been contaminated by VOCs (PCE and TCE), and six additional private drinking water supply wells have been impacted by trace levels of VOCs. In response, ME DEP has installed filtration systems for each of these five drinking water supply wells, and ME DEP continues to monitor and filter drinking water wells in the vicinity of the Property.

17. In about1983, ME DEP began investigations and/or oversight of environmental conditions at the Site. In 2008, ME DEP requested assistance from EPA's Emergency Planning and Response Branch.

18. MEC conducted comprehensive groundwater and debris pile evaluation to document Site conditions in the 1990s and 2000s.

19. Following performance of the preliminary assessment/site investigation ("PA/SI") conducted by EPA, on September 15, 2011, EPA issued an Action Memorandum authorizing, *inter alia*, the performance of actions to restrict access to the Property and to address areas of significantly high lead contamination in surface soils.

20. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Leeds Metal Superfund Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on September 18, 2012, 77 Fed. Reg. 57495-57504.

21. On October 10, 2012, pursuant to a removal action Administrative Order on Consent (2012 Removal Action AOC), MEC agreed to perform the activities described in the Action Memorandum, including: removing a hot spot of high lead in soils located in the northeast corner of the Site; fencing the entire former Operations Area of the Site; and installing signs around the Site. By letter dated February 24, 2014, EPA notified Respondent that it had performed all work necessary to implement the removal action.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth in Section V, EPA has determined that:

22. The Leeds Metal Superfund Site is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

23. The contamination, including but not limited to, PCBs, VOCs, lead, arsenic, cadmium, and chromium found at the Site, as identified in the Findings of Fact above, includes "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

24. The conditions described in Paragraphs 12 to 21 of the Findings of Fact in Section V above constitute an actual and/or threatened "release" of a hazardous substance from the facility as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

25. Respondent is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

26. Respondent is a responsible party under Sections 104, 107, and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607 and 9622.

a. Respondent is a responsible party under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is jointly and severally liable for performance of response action and for response costs incurred and to be incurred at the Site.

b. Respondent is the "owner" and/or "operator" of the facility, and the "owner" and/or "operator" of the facility at the time of disposal of hazardous substances at the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(1) and (a)(2) of CERCLA, 42 U.S.C. § 9607(a)(1) and (a)(2).

27. The actions required by this Settlement Agreement are necessary to protect the public health, welfare, or the environment, are in the public interest, 42 U.S.C. § 9622(a), are

consistent with CERCLA and the NCP, 42 U.S.C. §§ 9604(a)(1), 9622(a), and will expedite effective remedial action and minimize litigation, 42 U.S.C. § 9622(a).

28. EPA has determined that Respondent is qualified to conduct the RI/FS within the meaning of Section 104(a) of CERCLA, 42 U.S.C. § 9604(a), and will carry out the Work properly and promptly, in accordance with Sections 104(a) and 122(a) of CERCLA, 42 U.S.C. §§ 9604(a) and 9622(a), if Respondent complies with the terms of this Settlement Agreement.

VII. SETTLEMENT AGREEMENT AND ORDER

29. Based upon the foregoing Findings of Fact and Conclusions of Law and Determinations, it is hereby Ordered and Agreed that Respondent shall comply with all provisions of this Settlement Agreement, including, but not limited to, all appendices to this Settlement Agreement and all documents incorporated by reference into this Settlement Agreement.

VIII. DESIGNATION OF CONTRACTORS AND PROJECT COORDINATORS

30. Selection of Contractors, Personnel. All Work performed under this Settlement Agreement shall be under the direction and supervision of qualified personnel. Respondent has indicated that its preference will be to select personnel from Environmental Resources Management as Respondent's contractor. Within 30 days after the Effective Date, and before the Work outlined below begins, Respondent shall notify EPA in writing of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants, and laboratories to be used in carrying out such Work. With respect to any proposed contractor, Respondent shall demonstrate that the proposed contractor has a quality system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995, or most recent version), by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001; Reissued May 2006) or equivalent documentation as determined by EPA. The qualifications of the persons undertaking the Work for Respondent shall be subject to EPA's review, for verification that such persons meet minimum technical background and experience requirements. This Settlement Agreement is contingent on Respondent's demonstration to EPA's satisfaction that Respondent is qualified to perform properly and promptly the actions set forth in this Settlement Agreement. If EPA disapproves in writing of any person's technical qualifications, Respondent shall notify EPA of the identity and qualifications of the replacements within 30 days after the written notice. If EPA subsequently disapproves of the replacement, EPA reserves the right to terminate this Settlement Agreement and to conduct a complete RI/FS, and to seek reimbursement for costs and penalties from Respondent. During the course of the RI/FS, Respondent shall notify EPA in writing of any changes or additions in the personnel used to carry out such Work, providing their names, titles, and qualifications. EPA shall have the same right to disapprove changes and additions to personnel as it has hereunder regarding the initial notification.

31. Respondent has orally designated Dana H. Banks, Environmental Compliance Officer, Pan Am Railways, as Respondent's Project Coordinator who shall be responsible for administration of all actions by Respondent required by this Settlement Agreement. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site Work. EPA retains the right to disapprove of the designated Project Coordinator. If EPA disapproves of the designated Project Coordinator, Respondent shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number, and qualifications within 14 days following EPA's disapproval. Respondent shall have the right to change their Project Coordinator, subject to EPA's right to disapprove. Respondent shall notify EPA 14 days before such a change is made. The initial notification may be made orally, but shall be promptly followed by a written notification. Receipt by Respondent' Project Coordinator of any notice or communication from EPA relating to this Settlement Agreement shall constitute receipt by Respondent.

32. EPA has designated Anni Loughlin in the Office of Site Remediation and Restoration as its Remedial Project Manager. EPA will notify Respondent of a change of its designated Remedial Project Manager. Except as otherwise provided in this Settlement Agreement, Respondent shall direct all submissions required by this Settlement Agreement to the Remedial Project Manager at 5 Post Office Square, Suite 100, Mail Code: OSRR07-1, Boston, MA 02109-3912, loughlin.anni@epa.gov.

33. EPA's Remedial Project Manager shall have the authority lawfully vested in a Remedial Project Manager ("RPM") and On-Scene Coordinator ("OSC") by the NCP. In addition, EPA's Remedial Project Manager shall have the authority consistent with the NCP, to halt any Work required by this Settlement Agreement, and to take any necessary response action when she determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Remedial Project Manager from the area under study pursuant to this Settlement Agreement shall not be cause for the stoppage or delay of Work.

34. EPA shall arrange for a qualified person to assist in its oversight and review of the conduct of the RI/FS, as required by Section 104(a) of CERCLA, 42 U.S.C. § 9604(a). Such person shall have the authority to observe Work and make inquiries in the absence of EPA, but not to modify the RI/FS Work Plan.

IX. WORK TO BE PERFORMED

35. Respondent shall conduct the RI/FS in accordance with the provisions of this Settlement Agreement, the SOW, CERCLA, the NCP, and EPA guidance, including, but not limited to the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" ("RI/FS Guidance") (OSWER Directive # 9355.3-01, October 1988 or subsequently issued guidance), "Guidance for Data Useability in Risk Assessment (Part B)" (OSWER Directive #9285.7-09B, PB92-963362, May 1992 or subsequently issued guidance), and guidance referenced therein, and guidances referenced in the SOW, as may be amended or modified by EPA. The Remedial Investigation ("RI") shall consist of collecting data to characterize site conditions, determining the nature and extent of the contamination at or from the Site, assessing risk to human health and the environment, and conducting treatability testing

as necessary to evaluate the potential performance and cost of the treatment technologies that are being considered. The Feasibility Study ("FS") shall determine and evaluate (based on treatability testing, where appropriate) alternatives for remedial action to prevent, mitigate, or otherwise respond to or remedy the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site. The alternatives evaluated must include, but shall not be limited to, the range of alternatives described in the NCP, and shall include remedial actions that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In evaluating the alternatives, Respondent shall address the factors required to be taken into account by Section 121 of CERCLA, 42 U.S.C. § 9621, and Section 300.430(e) of the NCP, 40 C.F.R. § 300.430(e). Respondent shall submit all portions of any plan, report, or other deliverable Respondent is required to submit pursuant to provisions of this Settlement Agreement in accordance with Section III.B.7 of the SOW.

36. Upon receipt of the draft FS report, EPA will evaluate, as necessary, the estimates of the risk to the public and environment that are expected to remain after a particular remedial alternative has been completed and will evaluate the durability, reliability, and effectiveness of any proposed Institutional Controls.

37. Modification of the RI/FS Work Plan.

a. If at any time during the RI/FS process, Respondent identifies a need for additional data, Respondent shall submit a memorandum documenting the need for additional data to the EPA Remedial Project Manager within 7 days after identification. EPA in its discretion will determine whether the additional data will be collected by Respondent and whether it will be incorporated into plans, reports, and other deliverables.

b. In the event of unanticipated or changed circumstances at the Site, Respondent shall notify the EPA Remedial Project Manager by telephone within 24 hours of discovery of the unanticipated or changed circumstances. In the event that EPA determines that the unanticipated or changed circumstances warrant changes in the RI/FS Work Plan, EPA shall modify or amend the RI/FS Work Plan in writing accordingly. Respondent shall perform the RI/FS Work Plan as modified or amended.

c. EPA may determine that in addition to tasks defined in the initially approved RI/FS Work Plan, other additional Work may be necessary to accomplish the objectives of the RI/FS. Respondent agrees to perform these response actions in addition to those required by the initially approved RI/FS Work Plan, including any approved modifications, if EPA determines that such actions are necessary for a complete RI/FS.

d. Respondent shall confirm its willingness to perform the additional Work in writing to EPA within 7 days after receipt of the EPA request. If Respondent objects to any modification determined by EPA to be necessary pursuant to this Paragraph, Respondent may seek dispute resolution pursuant to Section XV (Dispute Resolution). The SOW and/or RI/FS Work Plan shall be modified in accordance with the final resolution of the dispute.

e. Respondent shall complete the additional Work according to the standards, specifications, and schedule set forth or approved by EPA in a written modification to the RI/FS Work Plan or written RI/FS Work Plan supplement. EPA reserves the right to conduct the Work itself at any point, to seek reimbursement from Respondent, and/or to seek any other appropriate relief.

f. Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions at the Site.

38. Off-Site Shipment.

a. Respondent may ship hazardous substances, pollutants and contaminants from the Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondent will be deemed to be in compliance with CERCLA Section 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Respondent obtains a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 200.440(b). Respondent may ship Investigation Derived Waste (IDW) from the Site to an off-Site facility only if Respondent complies with EPA's "Guide to Management of Investigation Derived Waste," OSWER 9345.3-03FS (Jan. 1992).

b. Respondent may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, Respondent provides written notice to the appropriate state environmental official in the receiving facility's state and to EPA's Remedial Project Manager. This written notice requirement shall not apply to any off-Site shipments when the total quantity of all such shipments will not exceed ten cubic yards. The written notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Respondent also shall notify the state environmental official referenced above and EPA's Remedial Project Manager of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Respondent shall provide the written notice after the award of the contract for remedial investigation and feasibility study and before the Waste Material is shipped.

39. Progress Reports. In addition to the plans, reports, and other deliverables set forth in this Settlement Agreement, Respondent shall provide to EPA monthly progress reports by the 10th day of the following month. At a minimum, with respect to the preceding month, these progress reports shall: (a) describe the actions that have been taken to comply with this Settlement Agreement during that month, (b) include all results of sampling and tests and all other data received by Respondent, (c) describe Work planned for the next two months with schedules relating such Work to the overall project schedule for RI/FS completion, and (d) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

40. Emergency Response and Notification of Releases.

a. In the event of any action or occurrence during, arising from, or relating to performance of the Work that causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action. Respondent shall take these actions in accordance with all applicable provisions of this Settlement Agreement, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondent shall also immediately notify the EPA Remedial Project Manager or, in the event of his/her unavailability, or the Regional Duty Officer of the Emergency Planning and Response Branch, EPA Region 1, at (617) 918-1224 and the National Response Center, at (800) 424-8802, of the incident or Site conditions. In the event that Respondent fails to take appropriate response action as required by this Paragraph, and EPA takes such action instead, Respondent shall reimburse EPA all costs of the response action not inconsistent with the NCP pursuant to Section XVIII (Payment of Response Costs).

b. In addition, in the event of any release of a hazardous substance from the Site, Respondent shall immediately notify the EPA Remedial Project Manager or Regional Duty Officer at (617) 918-1224 and the National Response Center at (800) 424-8802. Respondent shall submit a written report to EPA within 7 days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, *et seq*.

X. EPA APPROVAL OF PLANS AND OTHER SUBMISSIONS

41. After review of any plan, report, or other item that is required to be submitted for approval pursuant to this Settlement Agreement, in a notice to Respondent, EPA shall: (a) approve, in whole or in part, the submission; (b) approve the submission upon specified conditions; (c) modify the submission to cure the deficiencies; (d) disapprove, in whole or in part, the submission, directing that Respondent modify the submission; or (e) any combination of the above.

42. In the event of approval, approval upon conditions, or modification by EPA, pursuant to Paragraph 41.a, 41.b, 41.c, or 41.e, Respondent shall proceed to take any action required by the plan, report, or other deliverable, as approved or modified by EPA subject only to its right to invoke the Dispute Resolution procedures set forth in Section XV (Dispute Resolution) with respect to the modifications or conditions made by EPA. Following EPA approval or modification of a submission or portion thereof, Respondent shall not thereafter alter or amend such submission or portion thereof unless directed by EPA. In the event that EPA modifies the submission to cure the deficiencies pursuant to Paragraph 41.c and the submission had a material defect, EPA retains the right to seek stipulated penalties, as provided in Section XVI (Stipulated Penalties).

43. Resubmission.

a. Upon receipt of a notice of disapproval, Respondent shall, within 21 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other deliverable for approval. Any stipulated penalties applicable to the submission, as provided in Section XVI, shall accrue during the 21-day period or otherwise specified period but shall not be payable unless the resubmission is disapproved or modified due to a material defect as provided in Paragraph 45.

b. Notwithstanding the receipt of a notice of disapproval, Respondent shall proceed to take any action required by any non-deficient portion of the submission, unless otherwise directed by EPA. Implementation of any non-deficient portion of a submission shall not relieve Respondent of any liability for stipulated penalties under Section XVI (Stipulated Penalties).

c. EPA reserves the right to stop Respondent from proceeding further, either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS.

44. If EPA disapproves a resubmitted plan, report, or other deliverable, or portion thereof, EPA may again direct Respondent to correct the deficiencies. EPA shall also retain the right to modify or develop the plan, report, or other deliverable. Respondent shall implement any such plan, report, or deliverable as corrected, modified, or developed by EPA, subject only to Respondent's right to invoke the procedures set forth in Section XV (Dispute Resolution).

45. If upon resubmission, a plan, report, or other deliverable is disapproved or modified by EPA due to a material defect, Respondent shall be deemed to have failed to submit such plan, report, or other deliverable timely and adequately unless Respondent invokes the dispute resolution procedures in accordance with Section XV (Dispute Resolution) and EPA's action is revoked or substantially modified pursuant to a Dispute Resolution decision issued by EPA or superseded by an agreement reached pursuant to that Section. The provisions of Section XV (Dispute Resolution) and Section XVI (Stipulated Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If EPA's disapproval or modification is not otherwise revoked, substantially modified, or superseded as a result of a decision or agreement reached pursuant to the Dispute Resolution process set forth in Section XV, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in Section XVI.

46. In the event that EPA takes over some of the tasks, but not the preparation of the RI Report or the FS Report, Respondent shall incorporate and integrate information supplied by EPA into the final reports.

47. All plans, reports, and other deliverables submitted to EPA under this Settlement Agreement shall, upon approval or modification by EPA, be incorporated into and enforceable under this Settlement Agreement. In the event EPA approves or modifies a portion of a plan, report, or other deliverable submitted to EPA under this Settlement Agreement, the approved or modified portion shall be incorporated into and enforceable under this Settlement Agreement.

48. Neither failure of EPA to expressly approve or disapprove of Respondent's submissions within a specified time period, nor the absence of comments, shall be construed as approval by EPA. Whether or not EPA gives express approval for Respondent's deliverables, Respondent is responsible for preparing deliverables acceptable to EPA.

XI. QUALITY ASSURANCE, SAMPLING, AND ACCESS TO INFORMATION

49. Quality Assurance. Respondent shall assure that Work performed, samples taken, and analyses conducted conform to the requirements of the SOW, the QAPP, and guidances identified therein. Respondent will assure that field personnel used by Respondent are properly trained in the use of field equipment and in chain of custody procedures. Respondent shall only use laboratories that have a documented quality system that complies with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001; Reissued May 2006) or equivalent documentation as determined by EPA.

50. Sampling.

a. All results of sampling, tests, modeling, or other data (including raw data) generated by Respondent, or on Respondent's behalf, during the period that this Settlement Agreement is effective, shall be submitted to EPA in the next monthly progress report as described in Paragraph 39. EPA will make available to Respondent validated data generated by EPA unless it is exempt from disclosure by any federal or state law or regulation.

b. Respondent shall verbally notify EPA and the State at least 21 days prior to conducting significant field events as described in the SOW, RI/FS Work Plan, or Sampling and Analysis Plan. At EPA's verbal or written request, or the request of EPA's oversight assistant, Respondent shall allow split or duplicate samples to be taken by EPA (and its authorized representatives) or the State of any samples collected in implementing this Settlement Agreement. All split samples of Respondent shall be analyzed by the methods identified in the QAPP.

51. Access to Information.

a. Respondent shall provide to EPA and the State, copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form) (hereinafter referred to as "Records") within its possession or control or that of its contractors or agents relating to activities at the Site or to the implementation of this Settlement Agreement, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondent shall also make available to EPA and the State, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

b. Respondent may assert business confidentiality claims covering part or all of the Records submitted to EPA and the State under this Settlement Agreement to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Records determined to be confidential by EPA will be afforded the

protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies Records when they are submitted to EPA and the State, or if EPA has notified Respondent that the Records are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such Records without further notice to Respondent. Respondent shall segregate and clearly identify all Records submitted under this Settlement Agreement for which Respondent asserts business confidentiality claims.

c. Respondent may assert that certain Records are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Respondent assert such a privilege in lieu of providing Records, it shall provide EPA and the State with the following: (i) the title of the Record; (ii) the date of the Record; (iii) the name, title, affiliation (e.g., company or firm), and address of the author of the Record; (iv) the name and title of each addressee and recipient; (v) a description of the contents of the Record; and (vi) the privilege asserted by Respondent. However, no Records created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged or confidential.

d. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other Records evidencing conditions at or around the Site.

52. In entering into this Settlement Agreement, Respondent waives any objections to any data gathered, generated, or evaluated by EPA, the State or Respondent in the performance or oversight of the Work that has been verified according to the quality assurance/quality control ("QA/QC") procedures required by the Settlement Agreement or any EPA-approved RI/FS Work Plans or Sampling and Analysis Plans. If Respondent objects to any other data relating to the RI/FS, Respondent shall submit to EPA a report that specifically identifies and explains its objections, describes the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within 15 days after the monthly progress report containing the data.

XII. SITE ACCESS AND INSTITUTIONAL CONTROLS

53. If the Site, or any other property where access is needed to implement this Settlement Agreement, is owned or controlled by Respondent, such Respondent shall, commencing on the Effective Date, provide EPA, the State, and their representatives, including contractors, with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this Settlement Agreement. A fence installed by MEC in 2013 pursuant to the 2012 Removal Action AOC restricts public access to portions of the Site, and separates portions of the Site from Respondent's active railway line that abuts the eastern boundary of the Site. Because certain portions of the Site abut this active railway line, non-MEC personnel must be accompanied by a designated MEC safety personnel (*i.e.,* a Federal Railway Administration-approved flagman) if access is required for unfenced portions of the Site that are located within the active rail right-of-way (50 feet from the centerline of the current track) and EPA will provide notice to MEC if EPA or its contractors or representatives, will be accessing those portions of the Site unless an emergency arises for which immediate access is necessary.

54. Where any action under this Settlement Agreement is to be performed in areas owned by or in possession of someone other than Respondent, Respondent shall use its best efforts to obtain all necessary access agreements within 30 days after identifying the need for such access, or as otherwise specified in writing by the EPA Remedial Project Manager. Respondent shall immediately notify EPA if after using its best efforts Respondent is unable to obtain such agreements. For purposes of this Paragraph, "best efforts" includes the payment of reasonable sums of money in consideration of access. Respondent shall describe in writing its efforts to obtain access. If Respondent cannot obtain access agreements, EPA may either (a) obtain access for Respondent or assist Respondent in gaining access, to the extent necessary to effectuate the response actions described in this Settlement Agreement, using such means as EPA deems appropriate; (b) perform those tasks or activities with EPA contractors; or (c) terminate the Settlement Agreement. Respondent shall reimburse EPA for all costs and attorney's fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XVIII (Payment of Response Costs). If EPA performs those tasks or activities with EPA contractors and does not terminate the Settlement Agreement, Respondent shall perform all other tasks or activities not requiring access to that property, and shall reimburse EPA for all costs incurred in performing such tasks or activities. Respondent shall integrate the results of any such tasks or activities undertaken by EPA into its plans, reports, and other deliverables.

55. Notwithstanding any provision of this Settlement Agreement, EPA and the State retain all of their access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

XIII. COMPLIANCE WITH OTHER LAWS

56. Respondent shall comply with all applicable state and federal laws and regulations when performing the RI/FS. No local, state, or federal permit shall be required for any portion of any action conducted entirely on-site, including studies, if the action is selected and carried out in compliance with Section 121 of CERCLA, 42 U.S.C. § 9621. Where any portion of the Work is to be conducted off-Site and requires a federal or state permit or approval, Respondent shall submit timely and complete applications and take all other actions necessary to obtain and to comply with all such permits or approvals. This Settlement Agreement is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

XIV. RETENTION OF RECORDS

57. During the pendency of this Settlement Agreement and for a minimum of 10 years after commencement of construction of any remedial action, Respondent shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary. Until 10 years after commencement of construction of any remedial action, Respondent shall also instruct its contractors and agents to preserve all Records of whatever kind, nature, or description relating to performance of the Work, excluding drafts of formal submittals to EPA under this AOC/SOW that were submitted as final.

58. At the conclusion of this document retention period, Respondent shall notify EPA at least 90 days prior to the destruction of any such Records, and, upon request by EPA, Respondent shall deliver any such Records to EPA. Respondent may assert that certain Records are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Respondent asserts such a privilege, it shall provide EPA with the following: (a) the title of the Record; (b) the date of the Record; (c) the name and title of the author of the Record; (d) the name and title of each addressee and recipient; (d) a description of the subject of the Record; and (f) the privilege asserted by Respondent. However, no Records created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged or confidential.

59. Each Respondent hereby certifies individually that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any Records (other than identical copies) relating to its potential liability regarding the Site since the earlier of notification of potential liability by EPA or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA and State requests for information regarding the Site pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927, and state law.

XV. DISPUTE RESOLUTION

60. Unless otherwise expressly provided for in this Settlement Agreement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement Agreement. The Parties shall attempt to resolve any disagreements concerning this Settlement Agreement expeditiously and informally.

61. If Respondent objects to any EPA action taken pursuant to this Settlement Agreement, including billings for Future Response Costs, Respondent shall notify EPA in writing of its objection(s) within 5 (five) days after such action, unless the objection(s) has/have been resolved informally. EPA and Respondent shall have 14 (fourteen) days from EPA's receipt of Respondent's written objection(s) to resolve the dispute (the "Negotiation Period"). The Negotiation Period may be extended at the sole discretion of EPA. Such extension may be granted verbally but must be confirmed in writing.

62. Any agreement reached by the Parties pursuant to this Section shall be in writing and shall, upon signature by the Parties, be incorporated into and become an enforceable part of this Settlement Agreement. If the Parties are unable to reach an agreement within the Negotiation Period, an EPA management official at the Office of Remediation & Restoration Branch Chief level or higher will issue a written decision. EPA's decision shall be incorporated into and become an enforceable part of this Settlement Agreement. Respondent's obligations under this Settlement Agreement shall not be tolled by submission of any objection for dispute resolution under this Section. Following resolution of the dispute, as provided by this Section, Respondent shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs, and regardless of whether Respondent agrees with the decision.

XVI. STIPULATED PENALTIES

63. Respondent shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraphs 64 and 65 for failure to comply with any of the requirements of this Settlement Agreement specified below unless excused under Section XVII (Force Majeure). "Compliance" by Respondent shall include completion of the Work under this Settlement Agreement or any activities contemplated under any RI/FS Work Plan or other plan approved under this Settlement Agreement identified below, in accordance with all applicable requirements of law, this Settlement Agreement, the SOW, and any plans or other documents approved by EPA pursuant to this Settlement Agreement and within the specified time schedules established by and approved under this Settlement Agreement.

64. Stipulated Penalty Amounts - Major Violations.

The following stipulated penalties shall accrue per day for any noncompliance, including but not limited to failure to submit timely or adequate deliverables, except for any non-compliance specifically identified in Paragraph 65:

Penalty Per Violation Per Day	Period of Noncompliance
$ 2,000	1st through 14th day
$ 4,000	15th through 30th day
$ 6,000	31st day and beyond

65. Stipulated Penalty Amounts – Minor Violations.

The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate monthly progress reports as required by Paragraph 39:

Penalty Per Violation Per Day	Period of Noncompliance
$ 1,500	1st through 14th day
$ 2,000	15th day and beyond

66. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 83 (Work Takeover), Respondent shall be liable for a stipulated penalty in the amount of $250,000.

67. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (a) with respect to a deficient submission under Section X (EPA Approval of Plans and Other Submissions), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Respondent of any deficiency; and (b)

with respect to a decision by the EPA management official designated in Paragraph 62 of Section XV (Dispute Resolution), during the period, if any, beginning on the 21st day after the Negotiation Period begins until the date that the EPA management official issues a final decision regarding such dispute. Nothing in this Settlement Agreement shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

68. Following EPA's determination that Respondent has failed to comply with a requirement of this Settlement Agreement, EPA may give Respondent written notification of the same and describe the noncompliance. EPA may send Respondent a written demand for the payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Respondent of a violation.

69. All penalties accruing under this Section shall be due and payable to EPA within 30 days after Respondent's receipt from EPA of a demand for payment of the penalties, unless Respondent invokes the dispute resolution procedures under Section XV (Dispute Resolution). Respondent shall make all payments required by this Paragraph to EPA by Fedwire Electronic Funds Transfer to:

> Federal Reserve Bank of New York
> ABA = 021030004
> Account = 68010727
> SWIFT address = FRNYUS33
> 33 Liberty Street
> New York NY 10045
> Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

and shall reference stipulated penalties, Site/Spill ID Number 01FB and the EPA docket number for this action. At the time of payment, Respondent shall send notice that payment has been made as provided in Paragraph 77.c below.

70. The payment of penalties shall not alter in any way Respondent's obligation to complete performance of the Work required under this Settlement Agreement.

71. Penalties shall continue to accrue as provided in Paragraph 67 during any dispute resolution period, but need not be paid until 15 days after the dispute is resolved by agreement or by receipt of EPA's decision.

72. If Respondent fails to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as Interest. Respondent shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 69.

73. Nothing in this Settlement Agreement shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Respondent's violation of this Settlement Agreement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(*l*) of CERCLA, 42 U.S.C. § 9622(*l*), and punitive damages pursuant to Section 107(c)(3) of

CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that EPA shall not seek civil penalties pursuant to Section 122(*l*) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided in this Settlement Agreement, except in the case of willful violation of this Settlement Agreement or in the event that EPA assumes performance of a portion or all of the Work pursuant to Section XX (Reservation of Rights by EPA), Paragraph 83. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement.

XVII. FORCE MAJEURE

74. Respondent agrees to perform all requirements of this Settlement Agreement within the time limits established under this Settlement Agreement, unless the performance is delayed by a *force majeure*. For purposes of this Settlement Agreement, *force majeure* is defined as any event arising from causes beyond the control of Respondent or of any entity controlled by Respondent, including but not limited to its contractors and subcontractors, which delays or prevents performance of any obligation under this Settlement Agreement despite Respondent's best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work or increased cost of performance.

75. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement Agreement, whether or not caused by a *force majeure* event, Respondent shall notify EPA orally within forty-eight (48) hours of when Respondent first knew that the event might cause a delay. Within five (5) days thereafter, Respondent shall provide to EPA in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a *force majeure* event if it intends to assert such a claim; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health, welfare, or the environment. Failure to comply with the above requirements shall preclude Respondent from asserting any claim of *force majeure* for that event for the period of time of such failure to comply and for any additional delay caused by such failure.

76. If EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Settlement Agreement that are affected by the *force majeure* event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, EPA will notify Respondent in writing of its decision. If EPA agrees that the delay is attributable to a *force majeure* event, EPA will notify Respondent in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

XVIII. PAYMENT OF RESPONSE COSTS

77. Payments of Future Response Costs.

a. For the first two years after the Effective Date, every quarter beginning with the quarter after the Effective Date to the extent practicable, EPA will provide Respondent with an unreconciled cost summary, which is a line-item summary for Future Response Costs in dollars by category of costs (including but not limited to payroll, travel, indirect costs, contracts, and other agreements) incurred by EPA and its contractors for informational and not billing purposes. After the first two years after the Effective Date, EPA will provide Respondent with an unreconciled cost summary for Future Response Costs on a semi-annual basis for informational purposes.

b. Respondent shall pay EPA all Future Response Costs not inconsistent with the NCP. On a semi-annual basis, EPA will send Respondent a bill requiring payment that includes an itemized cost summary, which includes direct and indirect costs incurred by EPA, its contractors, and DOJ. Respondent shall make all payments within 30 days after receipt of each bill requiring payment, except as otherwise provided in Paragraph 79 of this Settlement Agreement. Payments shall be made to EPA by Fedwire Electronic Funds Transfer ("EFT") to:

Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York NY 10045
Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

and shall reference Site/Spill ID Number 01FB, and the EPA docket number for this action.

c. At the time of payment, Respondent shall send notice that payment has been made to Anni Loughlin, and to the EPA Cincinnati Finance Office by email at cinwd_acctsreceivable@epa.gov, or by mail to

EPA Cincinnati Finance Office
26 W. Martin Luther King Drive
Cincinnati, Ohio 45268

Such notice shall reference Site/Spill ID Number 01FB and the EPA docket number for this action.

d. The total amount to be paid by Respondent pursuant to Paragraph 77.b shall be deposited by EPA in the Leeds Metal Superfund Site Special Account to be retained and

used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

78. Interest. If Respondent does not pay Future Response Costs within 30 days after Respondent's receipt of a bill, Respondent shall pay Interest on the unpaid balance. The Interest on unpaid Future Response Costs shall begin to accrue on the date of the bill and shall continue to accrue until the date of payment. If EPA receives a partial payment, Interest shall accrue on any unpaid balance. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondent's failure to make timely payments under this Section, including but not limited to, payments of stipulated penalties pursuant to Section XVI. Respondent shall make all payments required by this Paragraph in the manner described in Paragraph 77.

79. Respondent may contest payment of any Future Response Costs billed under Paragraph 77 if it determines that EPA has made a mathematical error or included a cost item that is not within the definition of Future Response Costs, or if it believes EPA incurred excess costs as a direct result of an EPA action that was inconsistent with a specific provision or provisions of the NCP. Such objection shall be made in writing within 30 days after receipt of the bill and must be sent to the EPA Remedial Project Manager. Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, Respondent shall within the 30 day period pay all uncontested Future Response Costs to EPA in the manner described in Paragraph 77. Simultaneously, Respondent shall establish, in a duly chartered bank or trust company, an interest-bearing escrow account that is insured by the Federal Deposit Insurance Corporation, and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. Respondent shall send to the EPA Remedial Project Manager a copy of the transmittal letter and check paying the uncontested Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, Respondent shall initiate the Dispute Resolution procedures in Section XV (Dispute Resolution). If EPA prevails in the dispute, within 5 days after the resolution of the dispute, Respondent shall pay the sums due (with accrued interest) to EPA in the manner described in Paragraph 77. If Respondent prevails concerning any aspect of the contested costs, Respondent shall pay that portion of the costs (plus associated accrued interest) for which it did not prevail to EPA in the manner described in Paragraph 77. Respondent shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XV (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Respondent's obligation to reimburse EPA for its Future Response Costs.

XIX. COVENANT NOT TO SUE BY EPA

80. In consideration of the actions that will be performed and the payments that will be made by Respondent under the terms of this Settlement Agreement, and except as otherwise specifically provided in this Settlement Agreement, EPA covenants not to sue or to take administrative action against Respondent pursuant to Sections 106 and 107(a) of CERCLA, 42

U.S.C. §§ 9606 and 9607(a), for the Work and Future Response Costs. This covenant not to sue shall take effect upon the Effective Date and is conditioned upon the complete and satisfactory performance by Respondent of all obligations under this Settlement Agreement, including, but not limited to, payment of Future Response Costs pursuant to Paragraph 77 (Payment of Future Response Costs). This covenant not to sue extends only to Respondent and does not extend to any other person.

XX. RESERVATIONS OF RIGHTS BY EPA

81. Except as specifically provided in this Settlement Agreement, nothing in this Settlement Agreement shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants, or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing in this Settlement Agreement shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Settlement Agreement, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

82. The covenant not to sue set forth in Section XIX above does not pertain to any matters other than those expressly identified therein. EPA reserves, and this Settlement Agreement is without prejudice to, all rights against Respondent with respect to all other matters, including, but not limited to:

a. liability for failure by Respondent to meet a requirement of this Settlement Agreement;

b. liability for costs not included within the definition of Future Response Costs;

c. liability for performance of response action other than the Work;

d. criminal liability;

e. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

f. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site; and,

g. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the Site not paid as Future Response Costs under this Settlement Agreement.

83. Work Takeover. In the event EPA determines that Respondent has ceased implementation of any portion of the Work, is seriously or repeatedly deficient or late in its performance of the Work, or is implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may assume the performance of all or

any portion of the Work as EPA determines necessary. Respondent may invoke the procedures set forth in Section XV (Dispute Resolution) to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. Costs incurred by EPA in performing the Work pursuant to this Paragraph shall be considered Future Response Costs that Respondent shall pay pursuant to Section XVIII (Payment of Response Costs). Notwithstanding any other provision of this Settlement Agreement, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

XXI. COVENANT NOT TO SUE BY RESPONDENT

84. Respondent covenants not to sue and agrees not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work, Future Response Costs, or this Settlement Agreement, including, but not limited to:

a. any direct or indirect claim for reimbursement from the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

b. any claim arising out of the Work or arising out of the response actions for which the Future Response Costs have or will be incurred, including any claim under the United States Constitution, the State Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, or at common law; or

c. any claim pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, Section 7002(a) of RCRA, 42 U.S.C. § 6972(a), or state law relating to the Work or payment of Future Response Costs.

85. Except as expressly provided in Paragraph 88 (Claims Against De Micromis Parties), these covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to the reservations set forth in Section XX (Reservations of Rights by EPA), other than in Paragraph 82.a (liability for failure to meet a requirement of the Settlement Agreement) or 82.d (criminal liability), but only to the extent that Respondent's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

86. Respondent reserves, and this Settlement Agreement is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, and brought pursuant to any statute other than CERCLA or RCRA and for which the waiver of sovereign immunity is found in a statute other than CERCLA or RCRA, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States, as that term is defined in 28 U.S.C. § 2671, while acting within the scope of his or her office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, the foregoing shall not include any claim based on EPA's selection of response actions, or the oversight or approval of Respondent's plans, reports, other deliverables, or activities.

87. Nothing in this Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

88. Claims Against De Micromis Parties. Respondent agrees not to assert any claims and to waive all claims or causes of action (including but not limited to claims or causes of action under Sections 107(a) or 113 of CERCLA) that it may have for all matters relating to the Site against any person where the person's liability to Respondent with respect to the Site is based solely on having arranged for disposal or treatment, or for transport for disposal or treatment, of hazardous substances at the Site, or having accepted for transport for disposal or treatment of hazardous substances at the Site, if all or part of the disposal, treatment, or transport occurred before April 1, 2001, and the total amount of material containing hazardous substances contributed by such person to the Site was less than 110 gallons of liquid materials or 200 pounds of solid materials.

89. The waiver in Paragraph 88 shall not apply with respect to any defense, claim, or cause of action that a Respondent may have against any person meeting the above criteria if such person asserts a claim or cause of action relating to the Site against such Respondent. This waiver also shall not apply to any claim or cause of action against any person meeting the above criteria if EPA determines:

a. that such person has failed to comply with any EPA requests for information or administrative subpoenas issued pursuant to Section 104(e) or 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) or 9622(e), or Section 3007 of RCRA, or has impeded or is impeding, through action or inaction, the performance of a response action or natural resource restoration with respect to the Site, or has been convicted of a criminal violation for the conduct to which this waiver would apply and that conviction has not been vitiated on appeal or otherwise; or

b. that the materials containing hazardous substances contributed to the Site by such person have contributed significantly, or could contribute significantly, either individually or in the aggregate, to the cost of response action or natural resource restoration at the Site.

XXII. OTHER CLAIMS

90. By issuance of this Settlement Agreement, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent.

91. Except as expressly provided in Paragraph 88 (Claims Against De Micromis Parties), nothing in this Settlement Agreement constitutes a satisfaction of or release from any claim or cause of action against Respondent or any person not a party to this Settlement Agreement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages, and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

92. No action or decision by EPA pursuant to this Settlement Agreement shall give rise to any right to judicial review except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXIII. EFFECT OF SETTLEMENT/CONTRIBUTION

93. Except as provided in Paragraphs 88 (Claims Against De Micromis Parties), nothing in this Settlement Agreement shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Settlement Agreement. Except as provided in Section XXI (Covenant Not to Sue by Respondent), each of the Parties expressly reserves any and all rights (including, but not limited to, pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613), defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto. Nothing in this Settlement Agreement diminishes the right of the United States, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

94. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), and that Respondent is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), or as may be otherwise provided by law, for "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are the Work and Future Response Costs. The Parties further agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B), pursuant to which Respondent has, as of the Effective Date, resolved its liability to the United States for the Work and Future Response Costs.

95. The Respondent shall, with respect to any suit or claim brought by it for matters related to this Settlement Agreement, notify EPA in writing no later than 60 days prior to the initiation of such suit or claim. The Respondent also shall, with respect to any suit or claim brought against it for matters related to this Settlement Agreement, notify EPA in writing within 10 days after service of the complaint or claim upon it. In addition, the Respondent shall notify EPA within 10 days after service or receipt of any Motion for Summary Judgment and within 10 days after receipt of any order from a court setting a case for trial, for matters related to this Settlement Agreement.

96. In any subsequent administrative or judicial proceeding initiated by EPA, or by the United States on behalf of EPA, for injunctive relief, recovery of response costs, or other relief relating to the Site, Settling Parties shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, *res judicata*, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenant by EPA set forth in Section XIX.

97. Effective upon signature of this Settlement Agreement by a Respondent, such Respondent agrees that the time period commencing on the date of its signature and ending on the date EPA receives from such Respondent the payment(s) required by Section XVIII (Payment of Response Costs) and, if any, Section XVI (Stipulated Penalties) shall not be included in computing the running of any statute of limitations potentially applicable to any action brought by the United States related to the "matters addressed" as defined in Paragraph 94 and that, in any action brought by the United States related to the "matters addressed," such Respondent will not assert, and may not maintain, any defense or claim based upon principles of statute of limitations, waiver, laches, estoppel, or other defense based on the passage of time during such period. If EPA gives notice to Respondent that it will not make this Settlement Agreement effective, the statute of limitations shall begin to run again commencing ninety days after the date such notice is sent by EPA.

XXIV. INDEMNIFICATION

98. Respondent shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees, and representatives from any and all claims or causes of action arising from, or on account of negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors, and representatives in carrying out actions pursuant to this Settlement Agreement. In addition, Respondent agrees to pay the United States all costs incurred by the United States, including but not limited to attorneys' fees and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondent in carrying out activities pursuant to this Settlement Agreement. Neither Respondent nor any such contractor shall be considered an agent of the United States.

99. The United States shall give Respondent notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondent prior to settling such claim.

100. Respondent waives all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between any one or more of Respondent and any person for performance of Work on or relating to the Site. In addition, Respondent shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Respondent and any person for performance of Work on or relating to the Site.

XXV. INSURANCE

101. At least seven (7) days prior to commencing any on-Site Work under this Settlement Agreement, Respondent shall secure, and shall maintain for the duration of this

Settlement Agreement, commercial general liability insurance and automobile insurance with limits of five million dollars ($5,000,000), combined single limit, naming the EPA as an additional insured with respect to all liability arising out of the activities performed by or on behalf of Respondent pursuant to this Order. Within the same period, Respondent shall provide EPA with certificates of such insurance and a copy of each insurance policy. Respondent shall submit such certificates and copies of policies each year on the anniversary of the Effective Date. In addition, for the duration of the Settlement Agreement, Respondent shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondent in furtherance of this Settlement Agreement. If Respondent demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Respondent need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

XXVI. FINANCIAL ASSURANCE

102. Respondent shall include in the RI/FS Work Plan submitted pursuant to the SOW a proposed estimate of the total cost of carrying out the Work. Within 30 days of EPA's approval of the RI/FS Work Plan, Respondent shall establish and maintain financial security for the benefit of EPA in the amount of the estimated cost of the Work in one or more of the following forms, in order to secure the full and final completion of Work by Respondent:

a. a surety bond unconditionally guaranteeing payment and/or performance of the Work;

b. one or more irrevocable letters of credit, payable to or at the direction of EPA, issued by financial institution(s) acceptable in all respects to EPA equaling the total estimated cost of the Work;

c. a trust fund administered by a trustee acceptable in all respects to EPA;

d. a policy of insurance issued by an insurance carrier acceptable in all respects to EPA, which ensures the payment and/or performance of the Work;

e. a written guarantee to pay for or perform the Work provided by one or more parent companies of Respondent, or by one or more unrelated companies that have a substantial business relationship with at least one of Respondent, including a demonstration that any such guarantor company satisfies the financial test requirements of 40 C.F.R. Part 264.143(f); and/or

f. a demonstration of sufficient financial resources to pay for the Work made by Respondent, which shall consist of a demonstration that any such Respondent satisfies the requirements of 40 C.F.R. Part 264.143(f).

103. Any and all financial assurance instruments provided pursuant to this Section shall be in form and substance satisfactory to EPA, determined in EPA's sole discretion. In the event that EPA determines at any time that the financial assurances provided pursuant to this

Section (including, without limitation, the instrument(s) evidencing such assurances) are inadequate, Respondent shall, within 30 days after receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 102, above. In addition, if at any time EPA notifies Respondent that the anticipated cost of completing the Work has increased, then, within 30 days after such notification, Respondent shall obtain and present to EPA for approval a revised form of financial assurance (otherwise acceptable under this Section) that reflects such cost increase. Respondent's inability to demonstrate financial ability to complete the Work shall in no way excuse performance of any activities required under this Settlement Agreement.

104. If Respondent seeks to ensure completion of the Work through a guarantee pursuant to Paragraph 102.e or 102.f, Respondent shall: (a) demonstrate to EPA's satisfaction that the guarantor satisfies the requirements of 40 C.F.R. Part 264.143(f); and (b) resubmit sworn statements conveying the information required by 40 C.F.R. Part 264.143(f) annually, on the anniversary of the Effective Date, or such other date as agreed by EPA, to EPA. For the purposes of this Settlement Agreement, wherever 40 C.F.R. Part 264.143(f) references "sum of current closure and post-closure costs estimates and the current plugging and abandonment costs estimates," the dollar amount to be used in the relevant financial test calculations shall be the EPA approved cost estimate for the Work at the Site plus any other RCRA, CERCLA, TSCA, or other federal environmental obligations financially assured by the relevant Respondent or guarantor to EPA by means of passing a financial test.

105. If, after the Effective Date, Respondent can show that the estimated cost to complete the remaining Work has diminished below the amount set forth in Paragraph 102 of this Section, Respondent may, on any anniversary date of the Effective Date, or at any other time agreed to by the Parties, reduce the amount of the financial security provided under this Section to the estimated cost of the remaining Work to be performed. Respondent shall submit a proposal for such reduction to EPA, in accordance with the requirements of this Section, and may reduce the amount of the security after receiving written approval from EPA. In the event of a dispute, Respondent may seek dispute resolution pursuant to Section XV (Dispute Resolution). Respondent may reduce the amount of security in accordance with EPA's written decision resolving the dispute.

106. Respondent may change the form of financial assurance provided under this Section at any time, upon notice to and prior written approval by EPA, provided that EPA determines that the new form of assurance meets the requirements of this Section. In the event of a dispute, Respondent may change the form of the financial assurance only in accordance with the written decision resolving the dispute.

XXVII. INTEGRATION/APPENDICES

107. This Settlement Agreement and its appendices and any deliverables, technical memoranda, specifications, schedules, documents, plans, reports (other than progress reports), etc. that will be developed pursuant to this Settlement Agreement and become incorporated into and enforceable under this Settlement Agreement constitute the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement Agreement. The Parties acknowledge that there are no representations, agreements,

or understandings relating to the settlement other than those expressly contained in this Settlement Agreement. The following appendices are attached to and incorporated into this Settlement Agreement:

"Appendix A" is the SOW.

XXVIII. ADMINISTRATIVE RECORD

108. EPA will determine the contents of the administrative record file for selection of the remedial action. Respondent shall submit to EPA documents developed during the course of the RI/FS upon which selection of the response action may be based. Upon request of EPA, Respondent shall provide copies of plans, task memoranda for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports, and other reports. Upon request of EPA, Respondent shall additionally submit any previous studies conducted under state, local, or other federal authorities relating to selection of the response action, and all communications between Respondent and state, local, or other federal authorities concerning selection of the response action. At EPA's discretion, Respondent shall establish a community information repository at or near the Site, to house one copy of the administrative record.

XXIX. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

109. This Settlement Agreement shall be effective five (5) days after the Settlement Agreement is signed by the Director of the Office of Site Remediation and Restoration or his delegate. This Settlement Agreement may be amended by mutual agreement of EPA and Respondent. Amendments shall be in writing and shall be effective when signed by EPA. EPA Remedial Project Managers do not have the authority to sign amendments to the Settlement Agreement.

110. No informal advice, guidance, suggestion, or comment by the EPA Remedial Project Manager or other EPA representatives regarding reports, plans, specifications, schedules, or any other writing submitted by Respondent shall relieve Respondent of its obligation to obtain any formal approval required by this Settlement Agreement, or to comply with all requirements of this Settlement Agreement, unless it is formally modified.

XXX. NOTICE OF COMPLETION OF WORK

111. When EPA determines that all Work has been fully performed in accordance with this Settlement Agreement, with the exception of any continuing obligations required by this Settlement Agreement, including but not limited to, payment of Future Response Costs and record retention, EPA will provide written notice to Respondent. If EPA determines that any Work has not been completed in accordance with this Settlement Agreement, EPA will notify Respondent, provide a list of the deficiencies, and require that Respondent modify the RI/FS Work Plan if appropriate in order to correct such deficiencies, in accordance with Paragraph 37 (Modification of the RI/FS Work Plan). Failure by Respondent to implement the approved modified RI/FS Work Plan shall be a violation of this Settlement Agreement.

Agreed this 15 day of September, 2014.

For Respondent Maine Central Railroad Company

By: Cynthia A Seavard

Title: Executive Vice President

It is so ORDERED AND AGREED this 16 day of SEPTEMBER, 2014.

BY: _____ DATE: 9/16/14

James T. Owens, III, Director
Office of Site Remediation and Restoration
U.S. Environmental Protection Agency, Region 1

EFFECTIVE DATE: September 22, 2014

LEEDS METAL SUPERFUND SITE

STATEMENT OF WORK FOR REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

(Appendix A of Administrative Settlement Agreement and Order on Consent for Remedial Investigation and Feasibility Study, U.S. EPA Region I Docket No. CERCLA-01-2014-0026)

TABLE OF CONTENTS

STATEMENT OF WORK
FOR REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
LEEDS METAL SUPERFUND SITE

SECTION 1: OBJECTIVES, REPORTING REQUIREMENTS, AND SCHEDULE

This section describes the overall objectives, reports and schedule of the remedial investigation and feasibility study process. Subsequent sections will describe the separate phases of the process in more detail.

I. OBJECTIVES

The primary objective of the Remedial Investigation and Feasibility Study (RI/FS) shall be to assess site conditions and evaluate alternatives to the extent necessary to select a remedy for the Leeds Metal Superfund Site (the "Site") as defined in the Administrative Settlement Agreement and Order on Consent for Remedial Investigation and Feasibility Study ("Settlement Agreement"), Docket No. CERCLA-01-2014-0026, that shall be consistent with the National Oil and Hazardous Contingency Plan ("NCP") (40 CFR Part 300) and relevant guidance. The RI and FS shall be conducted simultaneously as integrated, phased studies leading to EPA's selection of a remedy, consistent with EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final (EPA/540/G-89/004, OSWER Directive 9355.3-01 October 1988) and the National Contingency Plan ("NCP"), among other authorities.

If, at any time during the RI/FS process, EPA determines that an engineering evaluation/cost analysis ("EE/CA") should be performed at the Site in preparation for a non-time critical removal ("NTCRA"), the Respondent shall conduct an EE/CA concurrent with the RI/FS.

A. Remedial Investigation

The objectives of the RI are to:

1. define the source(s), nature, extent, and distribution of contaminants released;

2. provide sufficient information for EPA to assess the current and future potential risks to human health and to the environment; and

3. provide sufficient information for EPA to evaluate remedial alternatives, conceptually design remedial actions, select a remedy, and issue a record of decision.

If EPA, after reasonable opportunity for review and comment by the Maine Department of Environmental Protection ("ME DEP"), determines that any of these objectives are not fully met, additional work plans, studies or other appropriate activities shall be designed and performed by EPA or the Respondent until EPA, after reasonable opportunity for review and comment by ME DEP, decides that no further investigation is necessary to achieve the goals and intentions of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA").

The RI shall include, but is not limited to, data gathering (monitoring and testing), and developing methodologies, procedures, and assessments for characterizing the physical and chemical attributes of the Site.

The procedures used to address the objectives listed above may include, but are not limited to: evaluating all existing Site information, including data generated and analyses prepared by the Respondent, EPA, ME DEP, and any of their respective contractors; identifying data gaps; performing field sampling and laboratory analyses; performing investigation activities such as surface geophysics; conducting bench scale and/or field pilot studies; and consulting all available federal and state applicable or relevant and appropriate human health and environmental regulations and/or laws.

Additional detail on the RI can be found in section 300.430(d) of the NCP and the Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final (EPA 540/G-89/004 OSWER-Dir. 9355.3-01 October 1988).

B. Feasibility Study

The objectives of the FS portions are to:

1. establish remedial action objectives and preliminary remediation goals, as described in NCP § 300.430(e)(2)(i);

2. review the applicability of various remedial technologies, including innovative technologies, to determine whether they are appropriate remedies for the Site;

3. determine if each alternative developed by combining technologies is effective, by evaluating in the short- and long-term each alternative's:

a. effectiveness,
b. implementability, and
c. cost;

4. evaluate each alternative or combination of alternatives that meets the above screening criteria through a detailed and comparative analysis based upon the nine (9) criteria listed in the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (EPA 540/G-89/004 OSWER-Dir. 9355.3-01 October 1988), and any criteria identified in the NCP (40 CFR Part 300) or CERCLA; and

5. provide direction to the RI to ensure that sufficient data of the appropriate type are gathered to select a remedy based on the factors mentioned in the objectives listed above.

The FS includes, but is not limited to, conceptualizations, engineering analyses, cost analyses, and an analysis of time frames for the achievement of clean-up goals. Additional detail on the FS can be found in NCP § 300.430(e) and the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (EPA 540/G-89/004 OSWER-Dir. 9355.3-01 October 1988).

C. Engineering Evaluation/Cost Analysis

If an EE/CA is deemed to be appropriate, the objectives of the EE/CA(s) will be to:

1. identify the objectives of the specific removal action; and
2. analyze the effectiveness, implementability and cost of various alternatives that may satisfy these objectives.

II. REPORTING REQUIREMENTS

All data, methods, and interpretations must be:

A. scientifically and technically sound with relevant assumptions, biases, potential deficiencies, safety factors, and design criteria explicitly stated;

B. discussed with observations and interpretation clearly identifiable and distinguishable;

C. discussed with relevant supporting reference material clearly identified and included;

D. concisely illustrated and presented in separate graphs, charts, maps, plans and/or cross-sections where possible, so that the text provides a clear discussion of such illustrations;

E. linked to each and every objective for which they were completed and to which they are applicable; and

F. sufficient to satisfy the objectives of the RI and FS listed above.

III. SCHEDULE: STEPS AND DELIVERABLES

A. RI/FS Steps

The Respondent shall perform the RI/FS as discussed in this section and as shown in Table 1. The illustrated process is based on the current understanding of the Site. The integrated RI/FS process ensures an orderly selection of a remedy. Site data needed to perform the FS shall be identified as early as possible in the RI. However, the results of investigations during the RI/FS may require changes in the process, such as conducting a non-time critical removal action (NTCRA).

The integrated RI/FS process described herein for the Site has several major steps, as shown in Table 1. Each step of the RI/FS process is associated with one or more phases of the RI or the FS (or the preparation of additional drafts and revisions of the RI/FS) and at least one deliverable, as shown in Table 1 and discussed in Sections 2 through 6. The RI has two phases, and the FS has two phases (see Figure 1.1 in the Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final (EPA 540/G-89/004 OSWER-Dir. 9355.3-01 October 1988). In this Statement of Work, Phase 1 of the RI, the Initial Site Characterization has been divided into Phase 1A and Phase 1B Field Investigations.

In addition to the above-described major steps shown in Table 1, this Statement of Work ("SOW") describes an additional component of the RI/FS process: the Baseline Risk Assessment (also shown in Table 1). The Respondent shall conduct a Baseline Risk Assessment, producing a report which shall be submitted as a separate document. The Baseline Risk Assessment shall be separated into a Baseline Human Health Risk Assessment and Baseline Ecological Risk Assessment. As part of the performance of the risk assessment task, a series of interim deliverables shall be submitted for EPA and ME DEP.

A significant amount of Site data and other information have already been collected during prior environmental sampling and response activities performed by the Respondent, ME DEP and

EPA. The Respondent shall compile available pre-existing data in order to avoid the duplication of previously completed efforts, and to maximize the efficiency of RI data collection activities.

B. RI/FS Deliverables

Deliverables for each step of the RI/FS are shown on Table 1. The actual number of deliverables may vary depending on:

1. the types of deliverables proposed by the Respondent and approved by EPA;

2. tasks within RI/FS steps, particularly the tasks planned for the scoping of the RI/FS (step 1) and the Phase 1A RI (step 2);

3. revisions based on EPA and ME DEP review;

4. requests for additional field studies, analyses, and documentation by EPA or the Respondent;

5. the quality and completeness of the Respondent's work;

6. the total number of steps required by EPA to be completed, after providing reasonable opportunity for review and comment by ME DEP; and

7. the possible need to conduct a non-time critical removal action (NTCRA).

EPA will consult with ME DEP in its review of each major deliverable; however, pursuant to the procedures described in the Settlement Agreement, EPA retains the authority to approve, disapprove, or modify all deliverables. In any event, EPA shall provide one set of comments to the Respondent. There shall be an approval, disapproval, or modification by EPA of each deliverable in accordance with the terms of the Settlement Agreement.

The Respondent shall provide EPA with 3 print copies and one electronic copy, and ME DEP with 1 print copy and one electronic copy, of each deliverable, unless otherwise directed by EPA. Upon request, Respondent shall also provide EPA with text and tables in MS Word, and provide data and drawings in workable and widely accepted electronic formats, or alternatively, provide EPA with access to electronic text, tables, data and drawings though a Virtual Private Network (VPN), File Transfer Protocol (FTP) or other acceptable electronic data-sharing link.

C. RI/FS Schedule

Initiation of the schedule for the Respondent to submit the Work Plan for the RI/FS shall begin on the Effective Date of the Settlement Agreement to perform the RI/FS. Initiation of the other steps and components of the RI/FS shall be triggered by notice from EPA as stated in Table 1. EPA may give notice to start a component of the study if appropriate even if prior steps have not been completed.

The established schedule shall be included as a component of the RI/FS Work Plan. Modifications of the schedule must be approved by EPA, after providing reasonable opportunity for review and comment by ME DEP, prior to their implementation. A copy of the schedule shall be contained in each major deliverable of the RI/FS and a summary status provided in each monthly progress report required by the Settlement Agreement.

TABLE 1 – SCHEDULE FOR RI/FS PROCESS

STEP	DELIVERABLES	DUE DATE
1. Scoping the RI/FS	RI/FS Work Plan, including Project Operations Plan ("POP")	Within 14 weeks after the Effective Date of the Settlement Agreement
2. Phase 1A RI	Initial Site Characterization (Phase 1A RI) Report; Phase 1B Field Investigation Work Plan (if required)	28 weeks after EPA approval of the RI/FS Work Plan
3. Phase 1B RI & Phase 1 FS	Draft RI Report, including draft Human Health and Ecological Baseline Risk Assessment; Phase 2 RI Work Plan (if required)	To be determined by EPA (following notice to proceed)
4. Phase 2 RI (if required) & Phase 2 FS	First Draft RI/FS; Work Plan for Additional Studies (if required)	To be determined by EPA (following notice to proceed)
5. Additional RI/FS Drafts, Reviews, and Revisions	Second draft RI/FS and subsequent drafts of the RI/FS until a Final Draft RI/FS is accepted by EPA for public review and comment, a responsiveness summary is completed, and a Record of Decision is signed	To be determined by EPA (following notice to proceed)

Additional Component	*Deliverable*	*Due Date*
Baseline Risk Assessment	Draft Baseline Risk Assessment Report and subsequent drafts of such report until a final Baseline Risk Assessment Report is accepted by EPA (or as part of the RI/FS)	To be determined by EPA (as part of the approval of the RI/FS Work Plan)
EE/CA (if necessary)	Engineering Evaluation and Cost Analysis Work Plan Engineering Evaluation and Cost Analysis Report	Engineering Evaluation and Cost Analysis Work Plan due 12 weeks after EPA notice to proceed with EE/CA.

Note: the term "approval," as used in Table 1 and in the rest of this SOW, shall encompass EPA's approval, conditional approval, or modifications after disapproval of submissions as described in Section X of the Settlement Agreement.

SECTION 2: STEP 1 – SCOPING OF THE RI/FS

I. OBJECTIVES

A significant amount of Site data and other information have already been collected during prior environmental sampling and response activities performed by the Respondent, ME DEP, and EPA. As part of developing the RI/FS Work Plan, the Respondent shall compile available pre-existing data, conduct a detailed review of such data, assess these data in terms of timeliness, and spatial and temporal adequacy, and address the usability of the data for the risk assessment.

The scoping of the RI/FS shall ensure that the Respondent:

A. understands the objectives of the RI/FS;

B. develops procedures to meet the RI/FS objectives, including those for field activities;

C. initiates the identification of federal and state Applicable or Relevant and Appropriate Requirements ("ARARs"), which shall provide criteria for remedy selection at the Site;

D. assembles and evaluates existing data, identifies data gaps, resolves inconsistencies, and fills in data gaps where necessary to accomplish RI objectives;

E. develops a conceptual understanding of the Site based on the evaluation of existing data and all newly acquired data;

F. identifies remedial action objectives and likely response scenarios and potentially applicable technologies and operable units for the Site;

G. develops an estimate of the total cost of carrying out the RI/FS;

H. undertakes limited data collection efforts or studies where this information will assist in scoping the RI/FS or accelerate response actions, and begin to identify the need for treatability studies, as appropriate;

I. identifies the type, quality and quantity of the data needed to assess potential remedial technologies, to evaluate technologies that may be combined to form remedial alternatives, and to support decisions regarding remedial response activities;

J. prepares site-specific health and safety plans that shall specify, at a minimum, employee training and protective equipment, medical surveillance requirements, standard operation procedures, and a contingency plan that conforms with 29 CFR 1910.120(1)(1) & (1)(2);

K. develops a Quality Assurance Project Plan and a Field Sampling Plan that shall provide a process for obtaining data of sufficient quality and quantity to satisfy data needs; and

L. drafts the negotiated schedule which shows the flow of studies and the submission of deliverables.

The Respondent shall review the above scoping requirements and prepare an RI/FS Work Plan that addresses the remaining objectives to be evaluated. The requirements listed in the Project Operations Plans will apply to every Work Plan that involves field activities. The RI Report shall include a detailed discussion of the studies completed and how the data requirements of the Remedial Investigation have been satisfied.

II. DELIVERABLES

A. Overview

In scoping the RI/FS, the Respondent shall deliver to EPA and ME DEP the following in writing:

1. Project Operations Plan;
2. Preliminary Identification of Probable ARARs;
3. Data Requirements of Potential Remedial Alternatives and Technologies;
4. Expanded Schedule for the RI/FS; and
5. Cost Estimate for the RI/FS.

Collectively, these documents are referred to as the RI/FS Work Plan in Table 1 and elsewhere in this document. The initial RI/FS Work Plan shall describe necessary studies to be done to complete the RI/FS. The RI/FS Work Plan shall be revised as necessary, and revisions submitted prior to each subsequent phase of work as described in Table 1 unless otherwise directed by EPA.

To reduce the submittal of repetitive information contained within each of the elements of the Work Plan, the Respondent may include appropriate cross-references at key places within each document.

B. Project Operations Plan

Before the initiation of field activities as part of the Phase 1A RI, several site-specific plans shall be written to establish procedures to be followed by the Respondent in performing field, laboratory, and analysis work and community and agency liaison activities. These site-specific plans include the:

1. Site Management Plan ("SMP");
2. Sampling and Analysis Plan ("SAP"), consisting of a Quality Assurance Project Plan ("QAPP") and a Field Sampling Plan ("FSP");
3. Health and Safety Plan ("HSP"); and
4. Community Relations Support Plan.

The Respondent shall combine these plans into the Project Operations Plan ("POP"). The POP is part of the RI/FS Work Plan. The POP is subject to EPA and ME DEP review, subsequent requests by EPA for revision, and rewriting by the Respondent before the commencement of RI field work at the Site. The four components of the POP are discussed in the following Sections.

The Respondent shall modify the format and scope of each plan as needed to describe the sampling, analyses, and other activities that are determined to be needed as the RI/FS progresses. These activities include on-site pilot studies and/or laboratory bench scale studies of remedial technologies, and subsequent rounds of field sampling. EPA may modify the scopes of these activities at any time during the RI/FS at the discretion of EPA in response to the evaluation of RI/FS results, changes in RI/FS requirements, and other developments or circumstances.

1. Site Management Plan ("SMP")

The overall objective of the Site Management Plan is to provide EPA with a written understanding and commitment of how various project aspects such as access, security, contingency procedures, management responsibilities, investigation-derived waste disposal, budgeting, and data handling are being managed by the Respondent. As part of the SMP, the Respondent shall include, at a minimum:

a. a map and list of properties, the names of the property owners, and the addresses and telephone numbers of owners to whose property access may be required;

b. a clear indication of the exclusion zone, contamination reduction zone, and clean area for on-site and off-site activities;

c. provisions reflecting that access will be obtained to allow the Respondent to perform required sampling under this SOW and that the Respondent will inform EPA and ME DEP of any access related problems and issues; necessary procedures and sample letters, for EPA review and approval, to landowners to arrange field activities and to ensure EPA and ME DEP are abreast of access-related problems and issues;

d. a provision for the security of government and private property at the Site;

e. measures, including a fence, to prevent unauthorized entry to the Site, which might result in exposure of persons to potentially hazardous conditions;

f. the location of an office for on-site activities;

g. contingency and notification plans (for federal, state, and local authorities) for potentially dangerous activities associated with the RI/FS;

h. provision for the monitoring of airborne contaminants released by Site activities which may affect the local populations;

i. communication to EPA, ME DEP, and the public of the

organization and management of the RI/FS, including key personnel and their roles and responsibilities;

j. a list of the categories of potential contractors and subcontractors to be hired by the Respondent (and their identities, if known) in the conduct of the RI/FS and a description of their activities and roles;

k. provision for the proper disposal of materials used and wastes derived during the RI/FS (e.g., drill cuttings, extracted groundwater, protective clothing, disposable equipment), which will be managed in accordance with the Guide to Management of Investigation-Derived Wastes (OSWER Directive 9345.3-03FS, January 1992) and/or alternate procedures approved by EPA. If applicable, these provisions shall be consistent with the off-site disposal aspects of SARA, RCRA, and applicable state laws. The Respondent, a representative of the Respondent, or another party acceptable to EPA and ME DEP, shall be identified as the generator of wastes for the purpose of regulatory or policy compliance; and

l. plans and procedures for organizing, analyzing, and presenting the data generated during the RI/FS. These plans shall include the description of the proposed computer database management system which, to the extent practicable, will be compatible with hardware and software available to EPA Region 1 and ME DEP personnel for handling media-specific sampling results obtained before and during the RI/FS. To the degree possible, the database management parameters shall be compatible with data storage and analysis systems available to the current EPA Region 1 and ME DEP data storage and analysis system. EPA will advise the Respondent as to its specific system requirements early in the RI/FS process.

2. Sampling and Analysis Plan ("SAP")

The purpose of the Sampling and Analysis Plan is to ensure that sampling data collection activities will be consistent with current sampling and analytical methodologies and will be comparable to and compatible with previous EPA and ME DEP data collection activities performed at the Site while providing a mechanism for planning and approving field activities.

The overall objectives of the Sampling and Analysis Plan are as follows:

a. to document specific data quality objectives ("DQOs"), procedures, and rationales for field work and sample analytical work;

b. to provide a mechanism for planning and approving Site and laboratory activities;

c. to ensure that sampling and analysis activities are necessary and sufficient; and

d. to provide a common point of reference for all parties to ensure the comparability and compatibility of sampling and analysis activities to meet the stated project objectives.

The first SAP shall be the framework of all anticipated field activities (e.g., sampling objectives, evaluation of existing data, standard operating procedures) and contain specific information on the Phase 1A field work (e.g., sampling locations and rationale, sample numbers and rationale, analyses of samples). During the RI/FS and/or the EE/CA, the SAP shall be revised as necessary to cover each round of field or laboratory activities.

The SAP consists of two parts: (1) a Quality Assurance Project Plan ("QAPP"), and (2) a Field Sampling Plan ("FSP"). The QAPP shall follow the requirements in QA/R-5 and the "Region I, EPA-New England Compendium of Quality Assurance Project Plan Requirements and Guidance." The FSP will contain all of the standard operating procedures ("SOPs") and other documentation to support specific sections of the QAPP. In some cases where there are unique FSP components for special applications, they will be added to the QAPP in the appropriate sections. In addition, the FSP and QAPP should be submitted as a single document (although they may be bound separately to facilitate use of the FSP in the field).

The SAP shall specify in the QAPP/FSP provisions for notifying EPA and ME DEP four (4) weeks before initiation of each field sampling or monitoring activity. The plan shall also allow split, replicate, or duplicate samples to be taken by EPA and/or ME DEP (and/or their contractor personnel or other government agencies working with EPA). At the request of EPA or ME DEP, the Respondent shall provide these samples in appropriate containers to the government representatives. Identical procedures shall be used to collect the

Respondent's, EPA's, and ME DEP's samples, unless otherwise specified by EPA or ME DEP. In the event that, following good-faith sampling efforts, insufficient sample volume is available to provide all the requested samples (e.g., due to poor recovery), priority shall be given to addressing quantity requirements for the Respondent's samples (as opposed to providing reduced volumes to all collectors and compromising analytical detection limits).

Guidance on the topics covered in the QAPP and FSP and their integration into each of these plans and the integration of the QAPP and the FSP into the SAP can be found in the following several references which shall be used to develop the SAP:

EPA Requirements for Quality Assurance Plans, EPA QA/R-5 (EPA/240/B-01/003, March 2001);

EPA Guidance for Quality Assurance Project Plans, QA/G-5 (EPA/240/R-02/009, December 2002);

EPA New England Quality Assurance Project Plan Program Guidance, (EQAQAPP-2005PG2, EPA NE QAPP Program, Revision 2, January 9, 2010);

Region I, EPA-New England Compendium of Quality Assurance Project Plan Requirements and Guidance (U.S. EPA-New England Region I Quality Assurance Unit Staff, Office of Environmental Measurement and Evaluation, October 1999);

Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (OSWER Directive 9355.3-01, EPA/540/G-89/004, October 1988);

Guidance for the Data Quality Objectives Process, QA/G-4 (EPA/600/R-96/055, August 2000);

Draft Data Quality Objectives Decision Errors Feasibility Trials (DEFT) Software (EPA/600/R-96/056, September 1994);

Guidance for the Data Quality Objectives Process for Hazardous Waste Sites, QA/G-4HW (EPA/600/R-00/007, January 2000);

Guidance for Preparing Standard Operating Procedures (SOPs), EPA QA/G-6 (EPA/240/B-01/004, March 2001);

Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, (Revised December 1996);

Region I, EPA-New England Quality Assurance Project Plan Guidance, Revision 4, April 2005;

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Pub. SW-846, Third Edition, latest update); and

Guidance for Data Quality Assessment: Practical Methods for Data Analysis, EPA QA/G-9 (EPA/600/R-96-084, QA 97 Version, January 1998).

2a. Quality Assurance Project Plan ("QAPP")

The Quality Assurance Project Plan ("QAPP") shall document in writing the site-specific objectives, policies, organizations, functional activities, sampling and analysis activities, and specific quality assurance/quality control activities designed to achieve the DQOs of the RI/FS. The QAPP developed for this project shall document quality control and quality assurance policies, procedures, routines, and specifications.

Project activities throughout the RI/FS shall comply with the QAPP. QAPP sampling and analysis objectives and procedures shall be consistent with EPA Requirements for Quality Assurance Plans, EPA QA/R-5 (EPA/240/B-01/003, March 2001), Guidance for Quality Assurance Project Plans, QA/G-5 (EPA/240/R-02/009), December 2002, and appropriate EPA handbooks, manuals, and guidelines, including Region I, EPA-New England Compendium of Quality Assurance Project Plan Requirements and Guidance (October 1999 Final, the "Compendium"), Region I, EPA-New England Quality Assurance Project Plan Guidance, Revision 4, April 2005, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Pub. SW-846, Third Edition, latest update) (CLP Routine Analytical Services, RAS, latest Statement of Work should be used), Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR, Part 136), and Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (EPA-600/4-84-041, April 1984).

All the QAPP elements identified in QA/R-5 and the Compendium must be addressed.

As indicated in QA/R-5 and the Compendium, a list of essential elements must be considered in the QAPP for the RI/FS. If a particular element is not relevant to a project and therefore excluded from the QAPP, specific and detailed reasons for exclusion must be provided.

Information in a plan other than the QAPP may be cross-referenced clearly in the QAPP, provided that all objectives, procedures, and rationales in the documents are consistent, and the reference material fulfills requirements of QA/R-5. Examples of how this cross-reference might be accomplished can be found in the Guidance for the Data Quality Objectives Process (EPA/600/R-96/055) and the Data Quality Objectives Decision Errors Feasibility Trials (DEFT) Software (EPA/600/R-96/056). EPA-approved references, or equivalent, or alternative methods approved by EPA shall be used, and their corresponding EPA-approved guidelines should be applied when they are available and applicable.

Laboratory QA/QC Procedures:

The QA/QC procedures and SOPs for any laboratory (both fixed and mobile) used during the RI/FS shall be included in the Respondent's QAPP. When this work is performed by a contractor to a private party, each laboratory performing chemical analyses shall meet the following requirements:

1. be approved by the State Laboratory Evaluation Program, if available;
2. have successful performance in one of EPA's National Proficiency Sample Programs (e.g., Water Supply or Water Pollution Studies or the State's proficiency sampling program);
3. be familiar with the requirements of 48 C.F.R. Part 1546 contract requirements for quality assurance; and
4. have a QAPP for the laboratory including all relevant analysis. This plan shall be referenced as part of the contractor's QAPP.

Data Validation Procedures:

The Respondent is required to certify that a representative portion of the data has been validated by a person independent of the laboratory

according to the Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Revised December 1996 (amended as necessary to account for the differences between the approved analytical methods for the project and the current Contract Laboratory Program Statements of Work ("CLP SOW")). A data validation reporting package as described in the guidelines cited above must be delivered at the request of the EPA Remedial Project Manager. Approved validation methods shall be contained in the QAPP.

The independent validator shall not be the laboratory conducting the analysis and should be a person with a working knowledge of or prior experience with EPA data validation procedures. The independent validator shall certify that the data have been validated, discrepancies have been resolved, if possible, and the appropriate qualifiers have been provided.

Data Package Requirements:

The Respondent must require and keep the complete data package and make it available to EPA on request in order for EPA to conduct an independent validation of the data. The complete data package shall consist of all results, a case narrative, the raw data, and all relevant QA/QC information. The forms contained in the data validation functional guidelines must be utilized to report the data when applicable. Raw data include the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labeled, or, for each sample and standard, a summary page will be provided that lists, for each retention time peak, the compound identified. The concentration of all standards analyzed with the amount injected must be included. All laboratory tracking information must also be included in the data package.

If the CLP program is used to analyze data, then all deliverables required under the current CLP SOW, must be delivered. An example CLP-like set of data package deliverables is listed below:

1. a summary of positive results and detection limits of non-detects with all raw data;
2. tabulated surrogate recoveries and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;

3. tabulated matrix spike/matrix spike duplicate recoveries, relative percent differences, spike concentrations, and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;
4. associated blanks (trip, equipment, and method with accompanying raw data for tests);
5. tabulated initial and continuing calibration results (concentrations, calibration factors or relative response factors and mean relative response factors, % differences and % relative standard deviations) with accompanying raw data;
6. tabulated retention time windows for each column;
7. a record of the daily analytical scheme (run logbook, instrument logbook) which includes samples and standards order of analysis;
8. the chain of custody for the sample shipment groups, DAS packing slip, DAS analytical specifications;
9. a narrative summary of method and any problems encounter during extraction or analysis;
10. tabulated sample weights, volumes, and % solids used in each sample calculation;
11. example calculation for positive values and detection limits; and
12. SW-846 method 3500 and 8000 validation data for all tests.

The forms contained in Chapter 1 of SW-846 (Second Edition 1982 as amended by Update I, April 1984, and Update II, April 1985) or the current CLP SOW forms must be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labeled. The concentration of all standards analyzed with the amount injected must be included. All internal and external laboratory sample tracking information must be included in the data package.

2b. Field Sampling Plan ("FSP")

The objective of the Field Sampling Plan ("FSP") is to provide EPA, ME DEP and all parties involved with the collection and use of field data with a common written understanding of all fieldwork and the standard procedures that will be used to collect samples and to supplement the

sampling rationale information found in the QAPP. The FSP shall address the RI/FS objectives and conform to the procedures in Section 2 of this document and the NCP.

The FSP shall define in detail the sampling and data gathering methods used on a project. The FSP should be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required. Guidance for the selection of field methods, sampling procedures, and custody can be acquired from the Compendium of Superfund Field Operations Methods (OSWER Directive 9355.0-12, EPA/540/P-87/001), which is a compilation of demonstrated field techniques that have been used during remedial response activities at hazardous waste sites.

The FSP shall supplement the site-specific sample collection information in the QAPP and shall include the following information only if the QAPP does not contain the information (this information is provided in Sections 5 through 10 of the Region I, EPA-New England Compendium of Quality Assurance Project Plan Requirements and Guidance, October 1999 Final (the "Compendium")):

Site Background. (Compendium Sections 5, 6, and 7) The analysis of the existing Site details must be included in the FSP. This analysis shall include a conceptual site model. A conceptual site model includes a description of the Site and surrounding areas and a discussion of known and suspected contaminant sources, potential exposure pathways, the mobility of contaminants, the likely receptors (human and ecological), and other information about the Site. The FSP shall also include descriptions of specific data gaps and ways in which sampling is designed to fill those gaps.

Sampling Objectives. (Compendium Sections 7 and 8) Specific objectives of a sampling effort that describe the intended uses of data must be clearly and succinctly stated.

Sample Location, Analytes, and Frequency. (Compendium Section 8) This section of the sampling plan identifies each sample matrix to be collected and the constituents to be analyzed. Tables shall be used to clearly identify the number of samples to be collected along with the appropriate number of replicates and

blanks. Figures shall be included to show the locations of existing or proposed sample points.

Sample Designation. (Compendium Section 10) A sample numbering system shall be established. The sample designation should include the sample or well number, the sample round, the sample matrix (e.g. surface soil, groundwater, soil boring), and the name of the Site.

Sampling Equipment and Procedures. (Compendium Section 9) Sampling procedures must be clearly written. Step-by-step instructions for each type of sampling are necessary to enable the field team to gather data that shall meet the Data Quality objectives (DQOs). A list should include the equipment to be used and the material composition (e.g., Teflon, stainless steel) of equipment along with decontamination procedures.

Sample Handling and Analysis. (Compendium Section 10) A table shall be included that identifies sample preservation methods, types of sampling jars, shipping requirements, and holding times. Examples of paperwork such as traffic reports, chain of custody forms, packing slips or Analysis Request forms, and sample tags filled out for each sample as well as instructions for filling out the paperwork must be included. Field documentation methods including field notebooks and photographs shall be described.

Each part of the FSP submitted as a part of the RI/FS Work Plan shall be sufficiently detailed to carry out the study, and shall provide data needed to address the objective of the study and to complete the study. Each study shall be designed to achieve a high performance on the first attempt. Each part of the FSP shall be related (by cross-references) to the other requirements in the POP.

In the part of the RI/FS Work Plan's FSP pertaining to the Phase 1A RI, the Respondent shall include plans that describe how each of the following and other necessary studies shall be addressed during the Phase 1A RI. See Section 3 of this document to facilitate understanding of the type and quality of the deliverable required for each activity of the Site Characterization.

1. site survey;

2. soils and sources of contaminants;
3. subsurface and hydrogeological factors for overburden and bedrock;
4. air quality;
5. surface water and sediment sampling;
6. ecological assessment;
7. pre-ROD monitoring and sampling; and
8. treatability and pilot studies (if required).

The complete results of these studies shall be described in the Phase 1A RI Report.

3. Health and Safety Plan

The objective of the site-specific HSP is to establish the procedures, personnel responsibilities, and training necessary to protect the health or safety of all on-site personnel during the RI/FS. The plan shall provide for routine but hazardous field activities and for unexpected site emergencies.

The site-specific health or safety requirements and procedures in the HSP shall be based on an ongoing assessment of site conditions, including the most current information on each medium. For each field task during the RI/FS, the HSP shall identify:

a. possible problems and hazards and their solutions;
b. environmental surveillance measures;
c. specifications for protective clothing;
d. the appropriate level of respiratory protection;
e. the rationale for selecting that level; and
f. criteria, procedures, and mechanisms for upgrading the level of protection and for suspending activity, if necessary.

The HSP shall also include the delineation of exclusion areas on a map and describe provisions for this delineation in the field. The HSP shall indicate the on-site person responsible for implementing the HSP as a representative of the Respondent, protective equipment, personnel decontamination procedures, and medical surveillance. The following documents shall be consulted:

EPA's Standard Operating Safety Guide (OSWER Directive No. 9285.1-03, PB 92-963414, June 1992);

OSHA e-HASP Software - Version 1.0. September 2003 (www.osha.gov/dep/etools/ehasp/index.html)

Occupational Safety and Health Standards (Department of Labor, Occupational Safety and Health Administration ("OSHA"), 29 C.F.R. Part 1910);

Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: Appendix B (NIOSH/OSHA/USCG/EPA 1985);

Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (OSWER Directive 9355.3-01, EPA/540/G-89/004); and

OSHA regulations at 40 C.F.R. § 1910 and Chapter 9 of the Interim Standard Operating Safety Guide, which describes the routine emergency provisions of a site-specific health and safety plan, shall be the primary reference used by the Respondent in developing and implementing the Health and Safety Plan.

The measures in the HSP shall be developed and implemented to comply with applicable State and Federal occupational health and safety regulations. The HSP shall be consistent with the objectives and contents of all other plans submitted by the Respondent. The HSP shall be updated during the course of the RI/FS, as necessary.

4. Community Relations Support Plan ("CRSP")

EPA, in coordination with ME DEP, shall develop a Community Relations Plan ("CRP") to describe public relations activities anticipated during the RI/FS. The Respondent shall develop a Community Relations Support Plan ("CRSP"), whose objective is to ensure and specify adequate support from the Respondent for the community relations efforts of EPA. This support shall include, at a minimum:

a. participation in public informational or technical meetings, including the provision of visual aids and equipment;

b. publication and copying of fact sheets or updates; and

c. assistance in preparing a responsiveness summary after the RI/FS public comment period.

C. Applicable or Relevant and Appropriate Requirements ("ARARs")

The Respondent shall identify all probable federal and state ARARs. Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other, circumstances at a CERCLA site. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.

In addition to ARARs, the Respondent shall also make preliminary determinations on the extent that other publicly available criteria, advisories, and guidances are pertinent to the hazardous substances, location of the Site, and remedial actions. ARARs and other criteria, advisories, and guidances shall be:

1. considered in terms of their chemical-specific, location-specific, and action-specific attributes;

2. evaluated for each medium (surface water, groundwater, sediment, soil, air, biota, and facilities), particularly for chemical-specific ARARs, but including other ARARs as appropriate;

3. distinguished for each technology considered, particularly for action-specific ARARs, but including other ARARs as appropriate; and

4. considered at each major step of the RI/FS where they are indicated.

In general, identification of chemical- and location-specific ARARs is more important in the beginning steps of the RI/FS, whereas the identification of action-specific ARARs gain importance later, during the more FS-oriented steps. If a requirement is determined to be not applicable, the Respondent shall subsequently consider whether it is relevant and appropriate. When any new site-specific information becomes available, ARARs should be re-examined.

Chemical-specific ARARs are usually health or risk-based numerical limits on the amount of, or concentration of, a chemical that may be found in, or discharged to the ambient environment.

Location-specific ARARs are general restrictions placed upon the concentration of hazardous substances or the conduct of activities solely because they are in special locations. Some

examples of special locations include, but are not limited to, floodplains, wetlands, historic places, places with objects of archaeological significance, and sensitive ecosystems or habitats.

Action-specific ARARs are usually technology-based or activity-based directions or limitations which control actions taken at CERCLA sites. Action-specific ARARs, as the name implies, govern the remedial actions.

As part of the RI/FS Work Plan, the Respondent shall provide a list in the form of a chart of preliminary and probable ARARs and publicly available EPA and ME DEP criteria, advisories, and guidances, and limitations which should initially be exhaustive of such requirements. The description shall briefly describe the requirements and shall include: if it is a numerical requirement; what it is based upon (e.g., health, technical practicality); and what media it is designed for (e.g., surface water, ambient air, etc.). The list shall indicate whether each requirement is: potentially applicable or relevant and appropriate; chemical-specific, location-specific, or action-specific; pertinent to surface water, groundwater, soil, air, biota, or facilities; and affixed with specific levels or goals to be attained. If specific levels or goals are affixed, they must be enumerated in the chart. It is expected that this preliminary list will be modified during the RI/FS as more information is gathered.

Data requirements in terms of physical and chemical characteristics needed to evaluate ARARs shall be considered as part of the scoping. Such requirements may include but are not limited to chemical residuals, background levels, or various modeling parameters. Such data requirements shall be satisfied during Phase 1A of the RI to the extent possible, rather than during the later phases of the RI/FS.

The following shall be consulted during the ARAR identification process:

> CERCLA Compliance with Other Laws Manual: Draft Guidance (August 1988, EPA/540/G-89/006);
>
> CERCLA Compliance with Other Laws Manual: Part II, Clean Air Act and Other Environmental Statutes and State Requirements (August 1989, EPA/540/G-89/009); and
>
> Section 4 of Guidance on Feasibility Studies Under CERCLA (EPA/540/G-85/003); and Appendix E of the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988), which present a partial list of potential ARARs.

Additional ARARs must be sought by the Respondent during a thorough search of applicable federal and state environmental statutes and regulations.

Chemical- and location-specific ARARs, as well as action-specific ARARs, will be identified after the development and Initial Screening of the Remedial Alternatives. EPA shall have final authority in deciding which ARARs are retained or added for consideration, and the extent to which they must be considered in remedy selection.

Justifications for incorporating or dropping a requirement shall be provided where such decisions are made.

The following paragraphs partially list potential ARARs for the Site. The list is not complete because investigative efforts at the Site (including the RI) have not been completed. However, the list shall be used to focus tasks during the RI/FS.

Safe Drinking Water Act

National Primary Drinking Water Standards, Maximum Contaminant Levels (40 CFR § 141): The maximum level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a public water system.

Maximum Contaminant Level Goals (40 CFR § 141): The maximum contaminant level in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety.

Secondary Drinking Water Standards, Secondary Maximum Contaminant Levels (40 CFR § 143): Contaminants that primarily affect the aesthetic quality of drinking water and are not federally enforceable.

Underground Injection (40 CFR § 144): These standards may be applicable if underground injection is chosen as a remediation technology. These standards require compliance with certain administrative and procedural sections of 40 CFR § 265 Subpart R.

Clean Water Act

A *NPDES permit (40 CFR § 125)* may be required if the remedy includes discharging to surface water offsite. The best available technology that is economically achievable must be used.

Toxic Pollutant Effluent Standards (40 CFR § 129): The concentration of a toxic pollutant in navigable waters that shall not result in adverse impact on important aquatic life, or on consumers of aquatic life, after exposure of that aquatic life to the pollutant for periods of time exceeding ninety-six (96) hours and continuing through at least one

reproductive cycle.

Toxic Substances Control Act

Disposal of PCBs (40 CFR § 761): If the remedy involves excavation of soils that contain PCBs, the requirements of this section must be satisfied. However, the section does not explicitly require excavation of PCB containing soil.

Resource Conservation and Recovery Act

In general, the applicable solid waste requirements shall be action-specific, applying to the remedial activities undertaken. RCRA requirements may be Applicable or Relevant and Appropriate.

Other potential ARARs are:

1. Regulations pertaining to activities that affect the navigation of waters of the United States (33 CFR § 320-329);
2. Endangered Species Act (50 CFR §§ 81, 225, and 402);
3. Fish and Wildlife Conservation Act (50 CFR § 83);
4. Wild and Scenic Rivers Act (36 CFR § 297);
5. Protection of Wetlands Executive Order No. 11990 (40 CFR Part 6);
6. Floodplain Management Executive Order No. 11988 (40 CFR Part 6);
7. Section 106 of the National Historic Preservation Act (Section 106 and 36 CFR § 800); and
8. Maine Natural Resources Protection Act, 38 M.R.S.A §§480-A to 480-FF and its implementing regulations including Maine Wetlands Protection Rule (06-096 Code of Maine Regulations, Chapters 310 and 335 (Significant Wildlife Habitat).

D. Data Requirements for Potential Remedial Alternatives and Technologies

Potential Remedial Action objectives shall be identified for each contaminated medium, and a preliminary range of remedial action alternatives and associated technologies shall be identified. The Respondent shall identify, consistent with the NCP and applicable guidance, all potential remedial alternatives that may be useful in remediating affected media. In discussing potential remedial alternatives, EPA describes an alternative as a group of technologies, including innovative ones, that will achieve certain remedial action goals (see Section 4). The Respondent shall identify the various technologies, showing the critical data needed to evaluate such technologies, and the performance of technologies grouped into an alternative. These data requirements shall be initially developed during the RI/FS Work Plan and shall be further updated and incorporated into subsequent field investigation work.

The identification of potential technologies shall help ensure that data needed to evaluate the technologies are collected in the Phase 1A Field Investigation and Phase 1B Field Investigation, if necessary. Certain parameters may be common to several possible technologies and alternatives. For example, the following parameters for soils are common: chemical compounds, soil density, soil moisture, soil types, soil gradation, BTU values, total halogens, and total organic carbon. Where capping may be required, waste and soil properties such as moisture content, unit weight, strength parameters, and chemical and physical data may need to be obtained during the RI through field and laboratory testing to evaluate slope stability and rate of settlement. Continued settlement monitoring using surficial settlement platforms and settlement anchors may be appropriate within the waste areas to collect data to estimate post-construction subsidence. Similar common data requirements exist for alternative remedies for other media.

In addition to the common data requirements, any other data necessary to evaluate a particular technology or alternative leading to remedy selection shall be noted in the RI/FS Work Plan and subsequently integrated into each field investigation. EPA's Guidance on Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988), and the Technology Screening Guide for Treatment of CERCLA Soils and Sludges, (EPA/540/2-88/004, September 1988) shall be sources of additional information on identifying alternative remedies and potential innovative technologies.

A preliminary list of broadly defined alternatives shall be developed by the Respondent. Consistent with Sections 4 and 5 of this document, this list shall include a range of alternatives in which treatment that significantly reduces the toxicity, mobility, or volume of waste is a principal element; one or more alternatives that involve containment with little or no treatment; and a no-action alternative. The Respondent shall present a chart, or a series of charts, showing the requirements and technologies to be considered for remedial alternatives. In the charts, data requirements shall be linked to the Work Plans for each field investigation.

E. Expanded Schedule for Remedial Investigation/Feasibility Study

The major predetermined deliverables are identified in Table 1. The established schedule along with a more detailed, expanded schedule for subtasks shall be included as a component of the RI/FS Work Plan. Modifications of the schedule must be approved by EPA, after providing reasonable opportunity for review and comment with ME DEP, prior to their implementation. The schedule shall be presented as a chart or table, which shall be updated when the schedule changes. A copy of the schedule shall be contained in each major deliverable of the RI/FS and a summary status provided in each monthly progress report required by the Settlement Agreement.

SECTION 3: STEP 2 – PHASE 1A RI

I. OBJECTIVES

At its onset, the goal of the Site Characterization (Phases 1A and 1B of the RI) shall be to collect and review existing field data and reports, and collect all new field data which can reasonably be assumed to be necessary to complete the RI, the FS, and the Baseline Risk Assessment, and which will be sufficient to select a remedy. At a minimum, the Respondent shall characterize and/or describe the following:

A. nature and extent of hazardous substance source areas;

B. lateral and vertical extent, concentration, toxicity, environmental fate, transport (e.g., bioaccumulation, persistence, mobility), phase (e.g., solid, liquid), and other significant characteristics of hazardous substances identified at the Site;

C. the media of occurrence, interface zones between media, and critical parameters for treatment (e.g., soil chemistry, soil types, porosity);

D. hydrogeologic factors for overburden, bedrock (e.g., depth to water table and water table fluctuations, hydraulic gradients, hydraulic conductivity, porosity, and estimated recharge), and waste piles (including tailing pile);

E. delineation and detail of the current status of any contaminant plume present;

F. chemical, physical, and biological processes that may work to limit the continued transport, diminish the concentration, or otherwise attenuate contamination. Identify the degree to which these processes can be expected to provide adequate natural attenuation and how these processes may be enhanced;

G. climate and water table fluctuation (e.g., precipitation, run-off, stream flow, water budget);

H. extent to which the hazardous substances have migrated or are expected to migrate from their original location, and identify probable receptor areas;

I. extent to which buildings, foundations, or other underground structures contain or overlie hazardous substances or contaminant plumes and the potential for a contaminant plume;

J. contaminant(s) contribution to the air, land, waters, and sediments, and the food

chain;

K. floodplain (including identification of 100-year floodplain) and wetland delineation, if necessary, surface water classifications and their existing use designations;

L. groundwater characteristics and current and potential groundwater uses (e.g., characteristics related to the groundwater classes described in the Ground-Water Protection Strategy (EPA, 1984) and under Maine law);

M. waste characteristics that affect the type of treatment possible, if appropriate;

N. potential extent and risk of future releases of substances or residuals remaining on-site and off-site;

O. physical characteristics of the Site, including important surface features, soils, geology, hydrogeology, meteorology, and ecology;

P. characteristics or classifications of air, surface water, and groundwater, including significant natural resource areas designated by federal and state laws;

Q. location of public and private water wells (e.g., aquifers used, construction details external or internal spigots, water quality);

R. extent to which contamination levels exceed health-based levels prompting a necessary response action;

S. extent to which substances at the Site may be reused or recycled;

T. general characteristics of the waste, including quantities, type, phase, concentration, toxicity, propensity to bioaccumulate, persistence, and mobility;

U. extent to which the source can be adequately identified and characterized;

V. actual and potential exposure pathways through environmental media;

W. actual and potential exposure routes, for example, inhalation and ingestion;

X. other factors, such as sensitive populations and threatened or endangered species, that pertain to the characterization of the Site or support the analysis of potential remedial action alternatives; and

Y. characterization of possible site-specific source areas.

Using this information, the Respondent may be required to further define the boundaries of the RI/FS study area. The Site Characterization shall provide information sufficient to refine the preliminary identification of potentially feasible remedial technologies, probable ARARs, and data needed to perform the Baseline Risk Assessment.

II. PHASE 1A RI REQUIREMENTS

The Site Characterization (Phase 1A RI) shall specifically consist of the activities and deliverables described in this section (Section 3). For each component of the Site Characterization, the Respondent shall establish, at a minimum, and include in the RI/FS Work Plan, the following:

A. an EPA-approved approach for the surface and subsurface soil sampling program, and identification of proposed sampling locations and depths for all other media on the developed Site base map;

B. a description of the locations of suspected contaminated areas and the areas considered to represent background levels;

C. an anticipated number and schedule of samples;

D. quality assurance/quality control procedures, including blanks, duplicates, alternative analysis conditions, and standards;

E. a method for determining how the field program shall be adjusted according to the initial sampling results;

F. the analytical methodology to be used for each medium including instrumentation and detection limits; and

G. an evaluation of how completely each objective of the Site Characterization (see Part "I. Objectives" of this section) has been addressed by any previous investigations, as well as details on any further efforts that are necessary to fill the remaining data gaps.

III. COMPONENTS OF THE SITE CHARACTERIZATION

A. Site Survey

The Respondent shall develop a site survey (base map) for the Site, which shall be expanded and updated as necessary. The Site base map shall have elevation contours and shall display survey data collected at the Site. The base map shall contain standard topographic, physiographic, cultural, and facility features, the surveyed locations of all wells, and surface sampling locations such as soil, sediment, surface water samples collected for assessment or remedial confirmation, or where media-specific samples were previously collected. The base map shall also show all delineated wetland and 100-year floodplain areas, and any designated federal and state natural resource areas. The Respondent shall provide to EPA and ME DEP copies of recent deeds used during the survey and the survey field team notes.

If necessary, the Respondent shall prepare similar maps of appropriate scale that show off-site sampling locations. The basis of one of these maps shall be the U.S. Geological Survey 7.5 minute quadrangle which includes the Site.

The Respondent shall determine the elevations and locations of all wells and piezometers utilized in the RI, and samples collected as part of the RI. It may be necessary to continually modify the Site base maps based on the ongoing results of the remedial investigations. All base maps shall encompass an area large enough to show all pathways of surface water run-off from the Site. The base maps shall be of sufficient detail to delineate areas into which contaminants may migrate. The site survey should be compatible with EPA's computer system. The plan for this component will be completed and shall be part of the RI/FS Work Plan's POP.

B. Soils and Sources of Contaminants

1. Objectives

To assess the soils and sources of contamination in the unconsolidated sediments and soils, the Respondent shall characterize and/or describe the following, as needed:

a. the nature and concentration of contaminants in the surface soils (0-6 inches) and subsurface soils (6-inches to 10 feet below ground surface or to the limit of contaminated soils whichever one is greater) over the entire Site (including wetland areas, if necessary) expected to have been impacted by Site contamination;

b. the phase in which the contaminants exist or chemical complexes (e.g., dissolved in groundwater, adsorbed by grains);

c. the critical parameters for each soil type and layer that is contaminated (e.g., soil moisture, soil profile, soil type, density, porosity, grain size, distribution, total organic carbon, mineralogy). This information may be reported on charts, maps, and cross sections;

d. the waste characteristics and mixtures that affect the type of treatment possible (pertinent physical and chemical characteristics of each compounds may be reported in a chart);

e. the extent to which the contaminants may be reused and/or recycled;

f. the background concentrations representative of each soil type and stratigraphic unit found to be contaminated;

g. the physical limitations and other materials handling aspects of the soil and other sources that are contaminated; and

h. the estimated volumes of soils and other sources of contamination that are contaminated for a range of contaminant concentrations.

2. Work Plan Requirements

A detailed work plan for the investigation of soils and contaminant sources shall be part of the RI/FS Work Plan's FSP. This work plan shall describe and justify the approximate numbers and locations of each boring, test pit, and sample to be performed, and shall provide for the sampling and analysis needed to fulfill the objectives listed previously.

3. Reporting Requirements

The on-site soils sampling work shall be sufficient to support, at a minimum, the following analyses, which shall be performed by the Respondent and included in the relevant RI Report(s):

a. a characterization of the vertical and horizontal extent of contamination in the unsaturated zone at the Site by soil sampling (i.e., coring, geo-probe, head-space measurements, etc.) and analysis. Areas with elevated concentrations of contaminants shall be sampled and analyzed in accordance with the approved work plan. The extent of contamination shall be bounded by sampling points showing non-detect or (in the case of

naturally occurring contaminants) background concentrations for compounds identified in the contaminated area. Analysis may be supported by isocontour maps, area calculations, and volume calculations;

b. an identification/verification of contaminated soil areas on the Site;

c. a review of the data to determine if further soil and unconsolidated material sampling and analysis are needed to accomplish the goals of the RI/FS;

d. a determination of the background levels of naturally occurring contaminants for each soil type based on sampling at a sufficient number of locations (at least one sample per stratum);

e. fate and transport assessment to estimate unconsolidated material concentration action limits based on the contamination levels that are preventive of groundwater contamination by leaching of contaminants to the saturated zone (including assumptions and values used in the assessment);

f. sufficient data on soil characteristics to understand the requirements of onsite materials handling and pretreatment so that the cost estimates are accurate to a +50% to -30% cost range and can be developed for the evaluation of remedial alternatives;

g. an estimation of the volumes of contaminated unsaturated soils and levels of confidence for the various soil action limits (from e. above) and a plot of these estimates on a graph of volume vs. soil action limits; and

h. an estimate of present and future contamination levels for soil at points of current and future potential exposure.

Results of these studies may be presented on maps, cross sections, charts, tables, and computer data bases. Based on the definition of initial soil sampling, the possible need for additional sampling and analysis shall be specified. The analysis of data shall be sufficient to map the sources, to show contaminant concentrations in three dimensions, and to estimate the volumes of soil should a soil excavation and/or in-situ treatment program be required later.

C. Subsurface and Hydrogeological Investigations

1. Objectives

The Respondent shall plan, conduct, and report subsurface and hydrogeological investigations sufficient to characterize and/or describe, at a minimum, the following:

a. the nature and extent of contamination (lateral and vertical, in each hydrologic unit) sufficient to define the boundaries of contaminant plumes located on the Site and to characterize the aquifers in three dimensions, including bedrock;

b. populations and environments at risk and potential risks associated with future releases, if applicable;

c. an estimate of the number of years necessary to achieve clean-up goals for groundwater alternatives, including extraction and treatment remedial alternatives;

d. the subsurface stratigraphy, structure and properties for each hydrologic unit. The following may be included in this analysis: thickness, lithology, grain size distribution (glacial deposits), soil index properties (e.g. plasticity index), porosity, hydraulic conductivity, fraction of organic carbon, storativity, sorting, fracturing (orientation, frequency), and moisture content;

e. the concentration, transport mechanisms, potential receptor locations, and other significant characteristics of each contaminant;

f. a quantification of the hydrogeological factors (e.g., in-situ hydraulic conductivity, storativity, conductivity, and storage capacity of each hydrologic unit; aquifer thickness; hydraulic and pressure gradients; and degree of interconnection between the different hydrogeologic units (e.g., bedrock and specific overburden strata);

g. the routes of groundwater migration, transport rates, and potential receptors. Also determine or qualitatively describe the locations, flow rates, contaminant concentrations, variability for discharge to bodies of surface water and wetlands, and head distributions within the geohydrologic units;

h. depth to and seasonal fluctuations in the water table, flow gradients, and contaminant concentrations, simultaneously with other factors such as

precipitation, run-off, and stream flow;

i. the condition of any existing monitoring wells and the need to replace or abandon them (utilizing data from any previous investigations);

j. the construction location, and proximity, of residential, municipal, and previously installed monitoring wells;

k. an assessment of plume stability and the migration potential of hazardous substances (analytical and/or numerical models and a process for modeling should be identified. The parameters, assumptions, accuracy, contingencies of the studies must be explicitly stated, and a plan established to verify the modeling if a significant risk is indicated for a specific population or environment);

l. a review and illustration of groundwater classifications (the need for institutional controls on groundwater use, considering such controls as adjuncts to remedial action, must be assessed);

m. physical and chemical characteristics that may affect the possible type of treatment (this information must be reported in a chart); and

n. the background concentrations of naturally occurring contaminants in groundwater at a sufficient number of horizontal and vertical locations, including at least one for the saturated unconsolidated overburden and bedrock.

2. Work Plan Requirements

The Respondent shall design investigations that are sufficient to fully address the objectives listed above and others that may arise during the RI/FS. The work plan for the subsurface and hydrogeological investigations shall be presented in the RI/FS Work Plan's FSP. This work plan shall also describe the locations, methods, field forms, procedures, and types of analyses to be used in performing the subsurface and hydrogeological investigations. This description shall include specific drilling methods and protocol to be used. The Ground Water Technical Enforcement Guidance Document (OSWER Directive 9950, September 1986) and the Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites (OSWER Directive 9283.1-2, Final Review Draft, EPA, August 1988) shall provide the framework of these subsurface and hydrogeological investigations. This work plan shall clearly show the relationship between the objectives and the studies to be performed (see Sections 1 and 3). This work

plan shall provide a mechanism for EPA to review and approve of deviations from the approved work plan (that may be necessary due to unforeseen field conditions). This work plan shall allow for the potential for additional work contingent on the results of the studies described in the RI/FS Work Plan.

3. Reporting Requirements

For the subsurface and hydrogeological investigations, the Respondent shall present the results and describe the actual procedures (especially when the actual procedures differ from those in the work plan) in a section of the Phase 1A RI Report. This section of the report may contain all data, analyses, maps, cross sections, and charts necessary to meet the objectives for which the investigations were performed. Illustrations shall clearly identify the data points, values, and the degree of interpolation or extrapolation necessary to draw conclusions.

D. Air Quality Assessment

Air data will be collected in sufficient quantity to perform baseline risk assessment analyses.

1. Objectives

The Respondent shall characterize and/or describe, the impact of the Site on the surrounding air quality (if any), which may require the following activities:

a. identification of any likely or detected point and area emissions of particulate, volatiles, and semi-volatiles for the existing Site, including volatilization from soil, leachate, contaminated water, waste piles, and other contaminant areas;

b. determination of background concentrations (before or after any intrusive field work performed during non-summer months) at a sufficient number of locations;

c. characterization of emissions as indicated above (i.e., particulate, vapors, precipitates, and gases);

d. estimation of the emission rates and worst case impacts on and off-site for the existing Site (detailed techniques for the characterizing of air emissions and impacts shall be used if screening data indicate a potentially significant concentration);

e. supplementation of ambient air monitoring with the collection of on-site meteorological data including ambient temperature, wind speed, wind direction, and barometric pressure, if necessary;

f. provision for monitoring of ambient air quality as described in the Work Plan that shall include a description of (i) the sampling methodology (including instrumentation, sampling times, locations, detection limits, QA/QC procedures) and (ii) the analytical methodology including instrumentation, detection limits and QA/QC procedures;

g. provision for modeling for potential emission sources (if necessary), including documentation of (i) source characteristics (e.g., emission rates, release height, velocity, temperature, source configuration, etc.), (ii) meteorological conditions, (iii) receptor locations, and (iv) background concentrations; and

h. evaluation of the factors that are critical in characterizing the nature and extent of airborne contaminants from the Site, such as background air quality.

2. Work Plan Requirements

The Respondent shall prepare a work plan for the air quality assessment during the scoping of the RI/FS. This plan shall become part of the RI/FS Work Plan's FSP. This work plan shall be implemented during the Phase 1A RI. As early as possible in the RI/FS, the Respondent shall gather data on the factors critical to assessing impacts on air quality. This work plan shall allow EPA and ME DEP to review differences between the specifications for the field work and the actual field work. This work plan shall also provide for additional monitoring and studies, if EPA determines they are necessary.

3. Reporting Requirements

The results of the air quality assessment shall be submitted to EPA and ME DEP for review, as part of the Phase 1A RI Report. Some of the air monitoring work may continue throughout the RI/FS. The Respondent shall discuss the potential for the control of gaseous emissions, including fugitive emissions.

E. Surface Water and Sediments

1. Objectives

The Respondent shall determine the nature and extent of contamination to nearby surface water bodies and associated wetlands. Releases of concern may occur through overland flow and groundwater migration. The Respondent shall also evaluate the nature and extent of contaminants in surface water and sediments at upgradient/upstream reference locations.

The Respondent shall determine the nature and extent of contaminants in the water and sediments of surface drainage areas and associated wetlands, both perennial and intermittent, potentially affected by contaminants from the Site. Samples of surface water and sediment shall be collected (and analyzed) from several locations and in each surface water flow path that may be affected by contaminants at the Site. The collection and analysis of the upgradient samples shall be sufficient to determine background concentrations of analytical parameters or to discriminate contaminants from the Site from those originating at other sources. Sampling schedules shall include the monitoring of seasonal changes including low flow periods. Sediment sampling shall be implemented to determine the vertical and horizontal limit of sediments impacted by the Site. The potential volume of sediments that may require remediation shall also be determined. Data to determine the grain size and organic content of the sediments as wells as the bioavailability of the contamination in the sediments shall be collected. The Respondent shall evaluate sediment deposition rates, sediment transport, and the fate of contaminated sediment. The Respondent shall also determine the extent to which the sediments are a source of surface water contamination and biota contamination.

2. Work Plan Requirements

The Respondent shall prepare a work plan for surface water and sediment sampling during the scoping of the RI/FS. This work plan shall be part of the RI/FS Work Plan's FSP. It shall contain provisions for sampling events and more general assessments of wetlands, floodplains, streams, and ponds if this additional work is needed. This work plan will include sampling events during both low and high flow periods. This work plan shall allow for EPA and ME DEP's review of proposed differences between the actual field work and the specifications for the field work.

3. Reporting Requirements

The surface water and sediment sampling data shall be compiled and presented in the Phase 1A Remedial Investigation Report and may include tables, graphs, charts, and other visual aids. These illustrations shall indicate the static water levels at the time of sampling and seasonal fluctuations of water levels and the impacts of those changes on contaminant concentration and migration.

F. Ecological Assessment

1. Objectives

The Respondent shall conduct an ecological assessment to determine the nature and extent of contamination to the ecological resources on, nearby, or otherwise influenced by the Site. A reference site may be required by EPA to be designated and sampled to produce data for EPA and ME DEP's use in evaluating the impact of the Site on the ecological receptors. The extent of the area to be studied shall be determined by the results of the relevant field investigation data, and upon the collection and review of available information concerning the biota expected to occur on or near the Site as either resident or transient species.

The Respondent shall determine the basic environmental characteristics at the Site, and to identify and characterize ecological communities, habitat types, and species, which are present on or surrounding the Site. The Respondent shall perform qualitative or quantitative assessments, bioassays, or tissue sampling to better determine the actual impact of the Site on the environment and to support the ecological risk assessment to be prepared by the Respondent. It is important to note that the collection of site specific information of good quality is often critical in evaluating ecological impacts at sites with widespread contamination. Both terrestrial and aquatic receptors shall be evaluated with respect to the ecological characterization. A discussion of the impacts of proposed remedial alternatives on ecological receptors shall be included in the Feasibility Study.

Specific attention shall be placed on the Section 404(b)(1) Guidelines of the Clean Water Act regarding wetlands. Specifically, Executive Order 11990 ("Protection of Wetlands," May 24, 1977) concerns impacts to wetlands, and Executive Order 11988 ("Floodplain Management") is involved where actions are to be evaluated in regard to projects which may impact a floodplain. Attention should also be directed to designated federal and state natural resource areas.

The information gathered during the ecological assessment will be used to develop the baseline ecological risk assessment, which is included in the Baseline Risk Assessment. Tables and other pertinent information shall be developed before EPA provides notice to proceed with Baseline Risk Assessment component identified in Table 1.

2. Work Plan Requirements

The Respondent shall submit a work plan for an ecological assessment as part of the RI/FS Work Plan's FSP. This work plan shall contain an evaluation of the applicability of the following elements, and a plan to implement those elements determined to be

applicable:

a. an accurate delineation of the wetland boundary using the U.S. ACE, 1987, Wetlands Delineation Manual with N.E. Division Field Data Collection Sheets, and classification of the wetland types using the Classification of Wetlands and Deepwater Habitats of the United States (FWS/OBS-79/31, US Fish and Wildlife Service, 1979) and determination of the functions and values of the wetlands;

b. an accurate description and delineation of the ten (10) year and hundred (100) year floodplain;

c. a description of habitat types including a map of all major habitats present at the Site, designated federal and state natural resource areas, and a list of plant and animal species, both resident and transient;

d. a determination of the status of those species identified in terms of sport or commercial usage, protected status, endangered, threatened, or of special concern;

e. sampling of environmental receptors for analysis of community composition, abundance, or body burden of contaminants;

f. sampling of chemical and physical parameters for surface water and sediments (e.g., grain size, total organic carbon, dissolved oxygen, etc.);

g. toxicity testing of indicator species to determine acute and chronic effects of contaminated media on the environment;

h. an evaluation of how the contamination from the Site has affected the receptors, including a discussion of fate and transport of the contaminants to the various habitat types or organisms;

i. an evaluation of whether contamination has affected the health of the wetland and other major habitats present at the Site (e.g., reduced plant growth or vigor or contributed contaminants to the food web); and

j. a discussion of how each remedial alternative under consideration affects the wetland, biota, and their functions and values.

G. Pre-Record of Decision Monitoring and Sampling

1. Objectives

The Respondent shall monitor the groundwater and surface water/sediments to determine the potential changes in the nature, extent, quantity, seasonal variability, climatological influence, environmental fate and transport, background levels, and migration pathways for each contaminant identified at the Site. The extent of this sampling will be dependent on the results of the Phase 1A RI. Pre-ROD monitoring and sampling shall commence with Phase 1A Field Investigation and continue until the issuance of the ROD.

2. Work Plan Requirements

The Respondent shall submit a work plan for pre-ROD sampling and monitoring contaminants in groundwater and surface water/sediments. This work plan shall be submitted as part of the Phase 1A RI Report. This work plan shall include provisions for needed expansions of the type, quantity, and coverage of the monitoring. This work plan shall be consistent with the procedures and requirements established in the RI/FS Work Plan's POP (Section 2), the overall objectives (Section 1), and the other components of the Phase 1A RI (Section 3).

Plans shall be developed for surface-water courses, groundwater (including nearby residential wells), and the biota potentially affected by contaminants released from the Site, as necessary. The pre-ROD monitoring may be separate and in addition to the site-specific studies.

3. Reporting Requirements

Results shall be presented after each sampling event and in accordance with the procedures described in the RI/FS Work Plan's POP (Section 2). Results of each round of sampling may be statistically and mathematically compared with results of previous rounds. Deviations and trends shall be illustrated and explained. All sampling reports shall be summarized for EPA and ME DEP review, and submitted as soon as possible following the sampling event.

H. Treatability and Pilot Studies (if required)

1. Objectives

The objective of the treatability and pilot studies is to obtain the information necessary to evaluate the effectiveness of potential remedial treatment technologies. The Respondent may need to conduct laboratory-scale simulations of treatment processes to evaluate the

treatability of contaminated groundwater, surface water, soils, and other environmental media. In any treatability and/or pilot studies, the Respondent may evaluate treatment options e.g., biological treatments, physical separation, chemical conditioning, and in-situ treatments.

The data from additional sampling programs and previously published data on the Site may be sufficient to develop a well-designed pilot program, if such a program is necessary. Before dynamic modeling, bench-scale tests may be performed to establish the "preliminary" treatability of contaminated media. Through the bench-scale tests, the Respondent may initially evaluate the applicability of treatments. Treatability studies to determine the applicability of treatments. Treatability studies to determine the most effective technologies to remediate any contaminant plume shall be initiated as early as possible but no later than the post-screening field investigation (Phase 2 RI, Phase 2 FS). These studies may be conducted anytime during the RI upon approval of EPA, after providing reasonable opportunity for review and comment by ME DEP.

2. Work Plan Requirements

Upon the request of EPA, the Respondent shall prepare a Treatability Study Work Plan for bench-scale and pilot-scale treatability investigations. This Treatability Study Work Plan shall be submitted to EPA for approval prior to the performance of treatability and pilot studies, and shall be made part of the RI/FS Work Plan. Likewise, a copy of this work plan shall be submitted to ME DEP for review and comment. This Treatability Study Work Plan must clearly define the purpose of the study and include a detailed test plan including drawings and a step-by-step procedure, if applicable.

3. Reporting

Results of treatability and pilot studies shall be submitted to EPA and ME DEP in the form of a report describing methods, analyses, and results.

IV. STEP 2 DELIVERABLES

A. Initial Site Characterization (Phase 1A RI) Report

The Respondent shall submit an Initial Site Characterization (Phase 1A RI) Report as a Step 2 deliverable. The Phase 1A RI Report, which meets the reporting requirements stated in this section, shall include the methods, data gathered, and analyses of results of all Phase 1A RI activities, as well as detail from all studies and findings that have been completed at the Site. This report shall also include data in the form of summary tables organized by media, a data base management system that is compatible with hardware and software currently available to EPA

Region 1 and ME DEP personnel, and a detailed description (with figures) of all sampling locations and depths. The Respondent shall evaluate how well the studies satisfy the objectives of the RI/FS (Section 1), objectives for each of the components stated above in this section. The report shall also explain differences between the actual field work and the work specified by the EPA-approved RI/FS Work Plan. Deficiencies in satisfying the objectives shall be clearly stated. Compilations of data shall be presented in formats that can accommodate the results of additional studies. To the extent practicable, the Respondent shall provide data compilations on computer data bases that are compatible with those currently available to EPA and ME DEP if requested. The Respondent shall work closely with EPA during the development of the data bases.

As part of the preparation of the Initial Site Characterization (Phase 1A RI) Report, the Respondent may prepare a concise Site Characterization Summary Report. This report may summarize the investigative activities that have taken place, and describe and display the locations, dimensions, physical condition and varying concentrations of each contaminant throughout each, and the extent of contamination through each of the affected media. The report may include tabular summaries of analytical, survey, and hydrogeologic data. In addition, maps may be presented that depict the location and characteristics of site features, groundwater potentiometric contours, and the distribution of various analytical parameters in the tested media (e.g., soil, sediments, groundwater, surface water, and air). Vertical cross sections may be used to display the distribution of selected analytical parameters in the subsurface. Copies of boring logs and other selected data may be provided as appendices. The primary objectives of the Site Characterization Summary Report will be to provide an initial submittal of the RI data that will allow an assessment of data gaps that remain to be filled. If appropriate, EPA and the Respondent will have a technical meeting(s) prior to the Respondent's submission of the Initial Site Characterization (Phase 1A RI) Report.

B. Phase 1B Field Investigation Work Plan (If Required)

After Phase 1A RI's Phase IA Field Investigation, the need for additional information may become apparent. If EPA, after consultation with ME DEP, determines that additional data are necessary to meet the objectives of the RI/FS, the Respondent shall prepare a Phase 1B Field Investigation Work Plan that describes the data to be obtained. The Respondent shall submit a Phase 1B Field Investigation Work Plan to EPA and ME DEP for review as a Step 2 deliverable, and shall perform the necessary studies after receiving a notice to proceed with the Phase 1B Field Investigation by EPA. The Phase 1B Field Investigation Work Plan shall be scoped to meet all field data collection objectives of the RI/FS (Section 1), be consistent with the procedures in the RI/FS Work Plan's POP (Section 2), and fulfill the requirements of the Site Characterization (Section 3).

If the Respondent believes that data collected during the Phase 1A Field Investigation is sufficient to meet all the objectives detailed in Section 3 (Phase 1A RI) and Section 4 (Phase IB

RI), then the Respondent shall submit a letter report supporting this recommendation for EPA's review and approval. Likewise, a copy of this report shall be submitted to ME DEP for review and comment.

SECTION 4: STEP 3 – PHASE 1B RI & PHASE 1 FS

I. PHASE 1B RI

In the Site Characterization (Phase 1 RI), including the Phase 1B Field Investigation, if deemed necessary by EPA, the Respondent shall gather field data necessary to fulfill the requirements of the following deliverables:

A. Draft RI Report (including the Baseline Risk Assessment);
B. Development and Initial Screening of Alternatives Report;
C. Post-Screening Field Investigation (Phase 2 RI) Work Plan (if required); and
D. First Draft RI/FS.

Phase 1B RI's Phase 1B Field Investigation is the second set of field investigations. Data gaps identified through the Phase 1A Field Investigation and further data requirements from the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988), the NCP, and the previous three sections of this SOW shall provide the focus for the studies.

II. DEVELOPMENT & INITIAL SCREENING OF ALTERNATIVES (PHASE 1 FS)

A. Development of Alternatives

The Respondent shall develop an appropriate range of waste management options in a manner consistent with the NCP, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (OSWER Directive 9355.3-01), and any format or guidance provided by EPA Region 1. Alternatives for remediation shall be developed by assembling combinations of technologies (including innovative ones that offer the potential for superior treatment performance or lower cost for performance similar to that of demonstrated technologies) and the media to which they would be applied into alternatives that address contamination at the Site or for an identified operable unit.

1. Objectives

Alternatives shall be developed that:

a. protect human health and the environment by recycling waste or by, eliminating, reducing, and/or controlling risks to human health and the environment posed through each pathway at the Site;

b. consider the long-term uncertainties associated with land disposal;

c. consider the goals, objectives, and requirements of the Solid Waste Disposal Act;

d. consider the persistence, toxicity, mobility, and propensity to bioaccumulate of hazardous substances and their constituents;

e. consider the short and long term potential for human exposure;

f. consider the potential threat to human health and the environment if the remedial alternative proposed were to fail;

g. consider the threat to human health and the environment associated with the excavation, transportation, and redisposal or containment of contaminated substances and/or media; and

h. consider potential impacts to wetlands and wetland biota.

2. Development

In addition, the Respondent shall perform the following activities:

a. development of remedial action objectives, specifying the contaminants and media of concern (approved by EPA), potential exposure pathways (approved by EPA), and preliminary remedial goals that are based on chemical specific ARARs, EPA risk assessment data, and Site characterization data;

b. development of general response actions for each media of interest defining engineering controls, treatment, excavation, pumping, or other actions, separately and in combinations that will satisfy the remedial action objectives;

c. identification of volumes or areas of media to which general response actions shall apply;

d. identification and screening of technologies, including innovative ones, that would be applicable to each general response action;

e. assembly of the selected technologies into alternatives representing a range of treatment and containment options; and

f. identification and evaluation of appropriate handling, treatment, and final disposal of all treatment residuals (e.g., ash, decontaminated soil, sludge, decontamination fluids).

B. Initial Screening of Alternatives

1. Criteria

In screening the alternatives, the Respondent shall consider, but not be limited to, the short and long term aspects of the following three criteria:

Effectiveness. This criterion focuses on the degree to which an alternative reduces toxicity, mobility, or volume through treatment; minimizes residual risks and affords long term protection; complies with ARARs, and minimizes short-term impacts. It also focuses on how quickly the alternative achieves protection with a minimum of short term impact in comparison to how quickly the protection shall be achieved.

Implementability. This criterion focuses on the technical feasibility and availability of the technologies that each alternative would employ and the administrative feasibility of implementing the alternative.

Cost. The costs of construction and any long-term costs to operate and maintain the alternatives shall be considered.

2. Range of Alternatives

The Respondent shall develop a series of alternatives for the Site. These alternatives may include the following:

a. An alternative that, throughout the entire soil, source, and/or groundwater plume, reduces the contaminant concentrations to meet all MCLs, ARARs, and a 10^{-6} excess cancer risk. It shall achieve this objective as rapidly as

possible and must be completed in less than ten (10) years, if possible, and shall require no long term maintenance.

b. A no action alternative that would rely solely upon natural attenuation to meet clean-up standards. This may be "no further action," if some removal or remedial action has already occurred or is undertaken during the RI/FS at the Site.

c. For source control actions, as appropriate:

i. A range of alternatives in which treatment that reduces the toxicity, mobility, or volume of the hazardous substances, pollutants, or contaminants is a principal element. As appropriate, this range shall include an alternative that removes or destroys hazardous substances, pollutants, or contaminants to the maximum extent feasible, eliminating or minimizing, to the degree possible, the need for long-term management. The Respondent shall also develop, as appropriate, other alternatives which, at a minimum, treat the principal threats posed by the Site but vary in the degree of treatment employed and the quantities and characteristics of the treatment residuals and untreated waste that must be managed.

ii. One or more alternatives that involve little or no treatment, but provide protection of human health and the environment primarily by preventing or controlling exposure to hazardous substances, pollutants, or contaminants through engineering controls, for example, containment and, as necessary, institutional controls to protect human health and the environment and to assure continued effectiveness of the response action.

d. For groundwater response actions, the Respondent shall develop a limited number of remedial alternatives that attain site-specific remediation levels within different restoration time periods.

The Respondent shall give special consideration to innovative technologies. If any innovative technologies pertinent to the Site can be identified, then one or more such technologies shall be evaluated beyond the initial screening.

A no-action alternative that involves no long-term maintenance shall be carried through the development and screening, and shall be analyzed during the Detailed Analysis of Alternatives (see Section 5 below).

C. Reporting

All alternatives shall be presented in the Development and Initial Screening of Alternatives Report (see next subsection regarding Step 3 deliverables). If an alternative is to be eliminated, it must be screened out for clearly stated reasons contained in the NCP and other EPA guidances.

III. STEP 3 DELIVERABLES

A. Draft RI Report

A Draft RI Report shall be prepared by the Respondent and submitted to EPA and ME DEP for review as a Step 3 deliverable. The Draft RI shall describe and display in appropriate maps, tables, and figures, the Phase 1A and Phase 1B Field Investigations, and parallel samples taken by EPA or ME DEP, available to the Respondent. The Draft RI shall include a Site Characterization Report which shall consider, and if appropriately valid, use all available pre-RI/FS, Phase 1A, Phase 1B, and government field sample results. The Draft RI shall meet the requirements and objectives of the National Contingency Plan, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988), and Sections 1, 2, 3, and 4 of this SOW.

B. Post-Screening Field Investigation (Phase 2 RI) Work Plan (If Required)

A Post-Screening Field Investigation (Phase 2 RI) Work Plan shall be prepared by the Respondent and submitted to EPA and ME DEP for review as a Step 3 deliverable, if EPA, after consultation with ME DEP, determines that additional data are necessary to meet the objectives of the RI/FS. Alternatives, particularly those involving innovative technologies, may require additional field investigations to obtain data needed for further evaluation of site characteristics and the Detailed Analysis of Alternatives. The Phase 2 RI Work Plan shall include, but not be limited to:

1. supplemental literature searches to obtain additional data on treatment technologies;
2. bench and pilot scale treatability tests if necessary; and
3. the collection of additional field data to assess further the characteristics of the Site.

The Phase 2 RI Work Plan shall conform to the objectives, procedures, and methods described in Sections 1-4 of this SOW. The investigations shall include the collection of data needed to evaluate the effectiveness of the remedial alternatives, conceptually design remedial actions, select a remedy, and sign a record of decision. In the Phase 2 RI Work Plan, the Respondent shall describe the methods and procedures to be followed to perform field investigations necessary to fill the remaining data gaps. If the Respondent believe that no further field investigations are necessary, they must provide an explanation of how the previous studies fulfilled the data objectives and requirements of the NCP and the SOW. EPA shall have the final

authority to determine if further field investigations are necessary.

C. Development and Initial Screening of Alternatives Report

A Development and Initial Screening of Alternatives Report shall be submitted to EPA and ME DEP for review as a Step 3 deliverable. The report shall contain a chart of all alternatives and the analysis of the basic factors described in Section 4.II. The report shall justify deleting, refining, or adding alternatives. It shall also identify the data needed to select a remedy and the work plans for studies designed to obtain the data. The report shall contain charts, graphs, and other graphics to display the anticipated effectiveness of the alternatives including, for example:

1. maps showing the three-dimensional extent of contamination across the Site;

2. maps showing equal concentration lines for various potential soil clean-up levels and correlated risk levels;

3. graphs of soil volume to be treated or removed plotted against concentration (if necessary); and

4. graphs showing the predicted concentration reduction over time for potential groundwater remedial alternatives.

This report shall also include a work plan which will describe the methods by which the Respondent shall evaluate potential remedial alternatives to be submitted to EPA and ME DEP for review as a part of this Step 3 deliverable. This work plan shall be consistent with the NCP, Section 5 of this SOW, and shall consider the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988).

SECTION 5: STEP 4 – PHASE 2 RI (if required) & PHASE 2 FS

I. PHASE 2 RI

The purpose and objective of the Phase 2 RI is to provide for the information required to fill all relevant data gaps and to provide information necessary to perform the Detailed Analysis of Alternatives and the preparation of the First Draft RI/FS. This may include, but not be limited to, bench and pilot scale treatability studies of potential technologies, literature searches, and field investigations. Field investigations may be performed by the Respondent if information relevant to the selection of a remedial action alternative is not sufficient to perform a Detailed Analysis of Alternatives that shall result in a remedy consistent with the NCP.

II. DETAILED ANALYSIS OF ALTERNATIVES (PHASE 2 FS)

A. Analysis

The detailed analysis of alternatives consists of an assessment of individual alternatives against each of the nine (9) evaluation criteria and a comparative analysis that focuses upon the relative performance of each alternative against those criteria. The analysis shall be consistent with the NCP and shall consider the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (OSWER Directive 9355.3-01).

The nine criteria are as follows:

1. Overall protection of human health and the environment
2. Compliance with ARARs
3. Long term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume through treatment
5. Short term effectiveness
6. Implementability
7. Cost
8. State acceptance
9. Community acceptance

Criteria one (1) and two (2) from the above list are considered threshold criteria. This means that an alternative must meet these two (2) criteria or must contain a statutory basis for waiving compliance with specific ARARs in order for it to be eligible for selection. Criteria three (3) through seven (7) on the above list are considered primary balancing criteria. These five (5) criteria are used to further evaluate alternatives that satisfy the threshold criteria. The final two (2) criteria, state acceptance and community acceptance, are modifying criteria that shall be considered by EPA in remedy selection.

B. Reporting

The Detailed Analysis of Alternatives, which shall be presented in the FS, shall contain the following:

1. further definition of each alternative with respect to the volumes or areas of contaminated media to be addressed, the technologies to be used, and any performance requirements associated with those technologies;

2. a process scheme for each alternative which describes how each process stream, waste stream, emission residual, or treatment product shall be handled, treated and/or disposed;

3. an assessment and a summary profile of each alternative against the nine (9) evaluation criteria; and

4. a comparative analysis among the alternatives to assess the relative performance of each alternative with respect to each evaluation.

III. STEP 4 DELIVERABLES

A. First Draft RI/FS

The Respondent shall submit a complete First Draft RI/FS to EPA and ME DEP for review. This and any subsequent drafts of the RI/FS shall conform to the NCP, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988), and any additional format, guidance, or examples provided by EPA. The FS portion of the RI/FS shall include a chart that delineates each criteria listed in Section 5.II. for each alternative. Other graphics shall be included that allow for comparisons of multiple alternatives at various risk, cost, and clean-up levels of soils, sediments, groundwater and surface water. These graphs may include the cost of potential remediation alternatives plotted against a range of soil clean-up levels; graphs of soil/sediment/waste volumes plotted against a range of soil clean-up volumes; and projected groundwater and surface water concentrations plotted against time for groundwater and surface water alternatives. The Respondent shall compare the alternatives by using the listed criteria and other appropriate criteria consistent with the NCP and all previous sections of this SOW.

B. Work Plan for Additional Studies (If Required)

If EPA, after providing reasonable opportunity for review and comment by ME DEP, or the Respondent deems that additional studies are needed, the Respondent shall submit a work plan for approval by EPA, and perform the studies consistent with an EPA-approved work plan.

SECTION 6: STEP 5—ADDITIONAL RI/FS DRAFTS, REVIEWS AND REVISIONS

Following EPA comments on the First Draft RI/FS, the Respondent shall prepare a Second Draft RI/FS addressing all EPA comments and requested changes. Depending on Site conditions, the acceptability of the latest Draft RI/FS, or other conditions, EPA may either request draft revisions until a Draft RI/FS is produced which EPA determines is satisfactory for public comment, or EPA may choose to complete the documents. The approval process shall be done pursuant to "Submissions Requiring EPA Approval" in the Settlement Agreement (U.S. EPA Region 1 Docket No. CERCLA-01-2014-0026).

When EPA determines that no other studies or drafts of the RI/FS are needed, the most recent Draft RI/FS submitted by the Respondent shall be considered the Final Draft RI/FS. The Final Draft RI/FS shall be submitted for public comment by EPA.

After the public comment period, the Respondent shall assist EPA in preparing a responsiveness summary. This assistance shall include, but not be limited to, providing EPA with draft responses to any comments provided by EPA to the Respondent within three (3) weeks of the date EPA provides the comments to the Respondent. If EPA seeks assistance from the Respondent in responding to numerous technical or extensive comments and an extension is requested, EPA shall extend the three (3) week deadline by an appropriate time period.

SECTION 7: BASELINE RISK ASSESSMENT

I. RISK ASSESSMENT OBJECTIVES

The Respondent shall complete a Baseline Risk Assessment. After evaluation of the field investigation information and establishment of the data base for the Site, the Respondent shall conduct a Baseline Risk Assessment and prepare the necessary risk assessment documents. The objective of this assessment is to characterize, and quantify where appropriate, the current and potential human health and environmental risks that would prevail if no further remedial action is taken.

II. RISK ASSESSMENT GUIDANCE

The risk assessment shall be completed in accordance with current guidance, procedures, assumptions, methods, and formats, including those listed below.

For both human health and ecological risk assessments:

> US EPA Region I Waste Management Division Risk Updates: 1992, 1994, 1995, 1996, & 1999.

For the human health risk assessment:

> Risk Assessment Guidance for Superfund (RAGS): Volume I, Human Health Evaluation Manual (Part A), Interim Final, OSWER Directive 9285.7-01A, EPA/540/1-89/002, December 1989.
>
> Risk Assessment Guidance for Superfund (RAGS): Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments), Final, OSWER Directive 9285.7-47, December 2001.
>
> Risk Assessment Guidance for Superfund (RAGS): Volume I - Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals), Interim, OSWER Directive 9285.7-01B, EPA/540/R-92/003, PB92-963333, December 1991.
>
> Risk Assessment Guidance for Superfund (RAGS): Volume I - Human Health Evaluation

Manual (Part C, Risk Evaluation of Remedial Alternatives), OSWER Directive 9285.7-01C, PB92-963334, October 1991.

Risk Assessment Guidance for Superfund (RAGS): Volume I - Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment), Interim, OSWER Directive 9285.7-02EP, PB99-963312, September 2001

Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors", OSWER Directive 9285.6-03 (EPA, March 25, 1991).

Supplemental Guidance to RAGS: Calculating the Concentration Term, OSWER Directive 9285.7-08I, June 22, 1992.

EPA Region I Supplemental Risk Assessment Guidance for the Superfund Program Part 1: Public Health Risk Assessment, EPA 901/5/89-001, June 1989.

Final Guidance Data Usability in Risk Assessment (Part A), OSWER Directive 9285.7-09A, PB92-963356, April 1992.

Guidance for Data Usability in Risk Assessment (Part B), OSWER Directive 9285.7-09B, PB92-963362, May 1992.

Dermal Exposure Assessment: Principles and Applications, Interim Report, Office of Research and Development, EPA/600/8-91/B, 1992.

Exposure Factors Handbook, Volumes I, II, and III, EPA/600/P-95/002Fa, August 1997.

Role of Background in the CERCLA Cleanup Program, OSWER Directive 9285.6-07P, April 26, 2002.

Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites, EPA/540/R-01/003, OSWER Directive 9285.7-41, September 2002.

Guidance on Risk Characterization for Risk Managers and Risk Assessors (Memorandum from F. Henry Habicht, EPA Deputy Administrator, to Assistant Administrators and Regional Administrators), Office of the Administrator, Washington, DC, 1992.

EPA Risk Characterization Program (Memorandum from Administrator Carol M. Browner to Assistant Administrators, Associate Administrators, Regional Administrators, General Counsel and Inspector General), Office of the Administrator, Washington, DC, March 21, 1995.

Soil Screening Guidance: User's Guide, EPA/540/1R-96/018, July 1996.

Calculating Upper Confidence Limits in Exposure Point Concentrations at Hazardous

Waste Sites, OSWER Directive 9285.6-10, December 2002.

Proposed Guidelines for Carcinogen Risk Assessment, Office of Research and Development, Washington, DC, EPA/600P-92/003C, 1996.

Guidelines for Carcinogenic Risk Assessment, SAB Review Draft, NCEA-F-0644, July 1999.

Draft Final Guidelines for Carcinogenic Risk Assessment, External Review Draft, Risk Assessment Forum, NCEA-F-0644A, March 2003.

Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, Peer Review Draft, OSWER Directive 9355.4-24, March 2001.

Integrated Risk Information System (IRIS).

Health Effects Assessment Summary Tables (HEAST), EPA/540/R-97/036, July 1997.

Land Use in the CERCLA Remedy Process (Memorandum from E.P. Laws to EPA Regional Directors), OSWER Directive 9355.7-04, May 1995.

Air/Superfund National Technical Guidance Study Series, Volumes I, II, III, and IV, EPA 450/1-89/001,002,003,004, July 1989.

Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, EPA/630/R-03/003F, 2005.

Guidance Manual for Health Risk Assessments of Hazardous Substance Sites.

For the ecological risk assessment:

Risk Assessment Guidance for Superfund (RAGS): Volume II - Environmental Evaluation Manual, Interim Final, EPA/540/1-89/001, March 1989.

Guidelines for Ecological Risk Assessment, EPA/630/R-95/002F, April 1998.

Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final, OSWER Directive 9285.7-25, EPA/540/R-97/006, PB97-963211, June 1997.

Ecological Assessment of Hazardous Waste Sites: A Field and Laboratory Reference Document, EPA/600/3-89/013, March 1989.

Wildlife Exposure Factors Handbook, Volume I of II, EPA/600/R-93/187a, December 1993.

Wildlife Exposure Factors Handbook - Appendix: Literature Review Database, Volume II of II, EPA/600/R-93/187b, December 1993.

ECO Update - The Role of Biological Technical Assistance Groups (BTAGs) in Ecological Assessment, Intermittent Bulletin Volume 1, Number 1, OSWER Directive 9345.0-05I, September 1991.

ECO Update - Ecological Assessment of Superfund Sites: An Overview, Intermittent Bulletin Volume 1, Number 2, OSWER Directive 9345.0-05I, December 1991.

ECO Update - The Role of Natural Resource Trustees in The Superfund Process, Intermittent Bulletin Volume 1, Number 3, OSWER Directive 9345.0-05I, March 1992.

ECO Update - Developing a Work Scope For Ecological Assessments, Intermittent Bulletin Volume 1, Number 4, OSWER Directive 9345.0-05I, May 1992.

ECO Update - Briefing the BTAG: Initial Description of Setting, History, and Ecology of a Site, Intermittent Bulletin Volume 1, Number 5, OSWER Directive 9345.0-05I, August 1992.

ECO Update - Using Toxicity Tests in Ecological Risk Assessment, Intermittent Bulletin Volume 2, Number 1, OSWER Directive 9345.0-05I, March 1994.

ECO Update - Catalogue of Standard Toxicity Tests for Ecological Risk Assessment, Intermittent Bulletin Volume 2, Number 2, OSWER Directive 9345.0-05I, March 1994.

ECO Update - Field Studies for Ecological Risk Assessment, Intermittent Bulletin Volume 2, Number 3, OSWER Directive 9345.0-05I, March 1994.

ECO Update - Ecotox Thresholds, Intermittent Bulletin Volume 3, Number 2, OSWER Directive 9345.0-12FSI, EPA/540/F-95/038, PB95-963324, January 1996.

Issuance of Final Guidance: Ecological Risk Assessment and Risk Management Principles for Superfund Sites, OSWER Directive 9285.7-28 P, October 7, 1999.

Framework for Ecological Risk Assessment, EPA/630/R-92/001.

Additional guidance that may be used to prepare and conduct the Baseline Risk Assessment are:

Guidelines for:

a. Carcinogen Risk Assessment (51 FR 33992, September 24, 1986);
b. Mutagenicity Risk Assessment (51 FR 34006, September 24, 1986);
c. The Health Risk Assessment of Chemical Mixtures (51 FR 34014, September 24, 1986);

d. The Health Assessment of Suspect Developmental Toxicants (56 FR 63798, December 5, 1991); and
e. Guidelines for Exposure Assessment (57 FR 22888, May 29, 1992).

III. RISK ASSESSMENT METHODOLOGIES

A. Components of the Risk Assessment

The Baseline Risk Assessment shall be separated into two components: 1) the human health risk assessment; and 2) the ecological risk assessment. The human health risk assessment shall address the following five categories at a minimum:

1. hazard identification;
2. dose-response assessment;
3. exposure assessment;
4. risk characterization; and
5. limitations/uncertainties.

The ecological risk assessment shall address the following seven categories:

1. definition of objectives;
2. characterization of site and potential receptors;
3. selection of chemicals, species and endpoints for risk evaluation;
4. exposure assessment;
5. toxicity assessment;
6. risk characterization; and
7. limitations/uncertainties.

B. Data Acquisition

The Baseline Risk Assessment shall be based upon information gathered prior to and during the RI/FS at the Site, as well as on data available through peer-reviewed literature. The Respondent shall, at the direction of EPA, collect additional field data to support the Baseline Risk Assessment. The decision regarding the need for supplemental data collection will be made by EPA (after providing reasonable opportunity for review and comment by ME DEP) following a review of the Phase 1A RI data. Primary importance will be placed upon data collected in the field at the Site, with data collected from the literature used to support or explain field results.

C. Deliverables

The final product(s) shall be the Draft Baseline Risk Assessment Report(s), which will be comprised of the human health and ecological risk assessments. Prior to submission of the final report(s), portions of the Baseline Risk Assessment in the form of interim deliverables may be submitted (examples of which are described below). The final schedule and the need for the

interim deliverables shall be finalized in the approval of the RI/FS Work Plan. These interim deliverables, if needed, shall be reviewed and accepted by EPA before proceeding with the next interim deliverable. Once all of the interim deliverables are accepted, a Draft Baseline Risk Assessment Report(s) shall be submitted either as a separate deliverable or as part of the Draft RI Report, and which shall be incorporated in the Draft RI/FS and subsequent drafts of the RI/FS. Following review and feedback from EPA and ME DEP on the Draft Baseline Risk Assessment Report(s), a Revised Draft Baseline Risk Assessment Report(s) and subsequent drafts of the Baseline Risk Assessment Report(s) may be required incorporating EPA's comments and any additional validated data or information, which were obtained after the completion of the draft report, that may have bearing on the Baseline Risk Assessment.

The exact number and format of the interim deliverables will be determined in the RI/FS Work Plan. Technical meetings may substitute for some of the interim deliverables. The following are examples of possible interim deliverables:

1. First Interim Deliverable

a. Human Health Risk Assessment

i. Hazard Identification I

The objective of this component is to present an orderly compilation of the available sampling data on the hazardous substances present at the Site, to identify data sets suitable for use in a quantitative risk evaluation, and if necessary, to identify contaminants of concern upon which the quantitative assessment of risk will be based.

This deliverable shall contain information identifying the extent of contamination in each medium. Summaries of the sampling data shall also be generated for each constituent detected in each medium indicating: the mean and maximum concentrations (including location of the latter), the frequency of detection, identification of the regulatory criteria (e.g., MCL/MCLGs), and the number of times the regulatory criteria is exceeded, where appropriate. In addition, pictorial/graphic displays of the data are strongly encouraged. The format of these displays will be dependent upon site-specific factors and will be determined with the approval of EPA, after providing reasonable opportunity for review and comment by ME DEP.

If the number of contaminants detected is so large that quantification of health risks for each contaminant would be infeasible, then contaminants of concern may be selected. Contaminants of concern for each medium shall be identified in accordance with the EPA Region I Supplemental Risk Assessment Guidance for the Superfund Program Part 1: Public

Health Risk Assessment. A narrative shall be supplied describing the selection process of contaminants of concern. Important factors in choosing contaminants of concern include contaminant concentration and frequency of detection, potential contaminant releases, potential routes and magnitude of exposure, environmental fate and transport, and toxicity.

ii. Exposure Assessment I

The purpose of this deliverable is to identify all plausible present and potential future exposure pathways and exposure parameters in accordance with the Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors" OSWER Directive 9285.6-03 (EPA, March 25, 1991). Identification of complete exposure pathways include: a source, transport medium, and exposure route. The exposure parameters specified below should be used; where none are provided, values found in OSWER Directive 9285.6-03, "Standard Default Exposure Factors" or in the Region I Supplemental Risk Assessment Guidance for Superfund should be used.

Tables or flow charts are useful methods of presenting the possible exposure pathways and are recommended.

Narrative descriptions and summary tables of exposure scenarios shall be provided in this submittal. The exposure scenarios for current and potential future land use shall include, but not be limited to exposure parameters characteristic of a reasonable exposure for the following: frequency and duration of exposure, body weight and the magnitude of exposure to the contaminated medium.

b. Ecological Risk Assessment

i. Hazard Identification I

This section shall correspond to Section 3.0 of the Ecological Risk Assessment (see below).

2. Second Interim Deliverable

a. Human Health Risk Assessment

i. Revised Hazard Identification

The Respondent shall incorporate any comments received from EPA on the first deliverable regarding the extent of contamination and the selection of contaminants of concern. In addition, any newly acquired validated data shall be incorporated into this deliverable.

ii. Revised Exposure Pathways and Parameters

The Respondent shall incorporate any comments received from EPA on the exposure pathways and exposure parameters made on the first deliverable.

iii. Dose-Response Evaluation

The objective of this component is to identify the nature and probability of adverse health effects which could be expected to result from exposure to the contaminants of concern. Carcinogenic and noncarcinogenic effects are characterized independently. The dose-response evaluation for possible carcinogenic effects is described by the cancer slope factor, while for noncarcinogenic effects the reference dose ("RfD") or other suitable health based criteria should be used. Agency verified dose-response criteria obtained from IRIS should preferentially be utilized.

The Respondent shall provide a dose-response evaluation consistent with the EPA Region I Supplemental Risk Assessment Guidance for the Superfund Program Part 1: Public Health-Risk Assessment.

b. Ecological Risk Assessment

i. Revised Hazard Identification

The Respondent shall incorporate any comments received from EPA on the first interim deliverable regarding the selection of contaminants of concern, indicator species and endpoints. In addition, any newly acquired validated data shall be incorporated into this deliverable.

ii. Exposure Assessment I

This section shall correspond to Section 4.0 of the Ecological Risk Assessment (see below).

3. Third Interim Deliverable

a. Human Health Risk Assessment

i. Exposure Assessment II

The purpose of the exposure assessment is to estimate a range of possible exposures which may result from actual or threatened releases of hazardous substances from the Site. The average and reasonable maximum exposure levels which are to be characterized are defined by the manner in which the contaminant concentration (average or maximum) is coupled with conservative exposure parameters developed for each exposure scenario per the first deliverable.

The resulting exposure levels (to be referred to as the average and reasonable maximum exposure levels) shall be revised in the draft and/or final risk assessment report, if additional validated data is received. The format of the exposure point concentrations and exposure dose levels shall be presented in narrative form and tables.

ii. Risk Characterization

Risk characterization integrates the information developed during the toxicity assessment (hazard identification and dose response evaluation) and the exposure assessment to quantify the risks from the site for each exposure pathway.

Presentation of the risk characterization shall be in the form of tables which separately summarize the noncarcinogenic and carcinogenic health risk.

iii. Uncertainties and Limitations

This section shall address the uncertainties and limitations of the analysis. It shall clearly address the major limitations, sources of uncertainty, and if possible, provide an indication as to whether they have resulted in an over or under-estimation of the risk.

b. Ecological Risk Assessment

The Respondent shall incorporate and satisfy all conditions and comments received from EPA on the second interim deliverable. In addition, any newly acquired validated data shall be incorporated into this deliverable.

D. Format of the Baseline Risk Assessment Report(s)

The drafts of the Baseline Human Health Risk Assessment Report(s) shall be submitted after the completion and acceptance of the interim deliverables in accordance with the schedule described above and/or approved in the RI/FS Work Plan. The format of this report shall conform to the chapters and sections as follows:

I. Draft Human Health Risk Assessment

1.0 Introduction/Hazard Identification
- *1.1 Site description and history*
  - *1.1.1 Present and future land use*
  - *1.1.2 Human receptors (including type, location and numbers)*
- *1.2 Nature and extent of contamination found at the site*
- *1.3 Selection of contaminants of concern*
  - *1.3.1 Health based ARARs (e.g. MCL/MCLG/MEG)*
- *1.4 Fate and transport*

2.0 Exposure Assessment
- *2.1 Exposure pathways*
- *2.2 Exposure scenarios*
  - *2.2.1 Exposure point concentrations (ug/l, mg/kg, ug/m3)*
  - *2.2.2 Exposure dose levels (mg/kg/day)*

3.0 Dose Response Evaluation
- *3.1 Dose response criteria for carcinogenic effects*
- *3.2 Dose response criteria for noncarcinogenic effects*

4.0 Risk Characterization
- *4.1. Narrative and tables summarizing the carcinogenic and noncarcinogenic risks by exposure pathway for the present and potential future exposure scenarios*

5.0 Uncertainty/Limitations

6.0 References

7.0 Appendices
- *7.1. Documentation/data*
- *7.2. Toxicity profiles for contaminants of concern*

II. Draft Ecological Risk Assessment

1.0 Introduction

2.0 Objectives

The site-specific objectives of the ecological risk assessment shall be clearly identified. Objectives could include the documentation of an actual or potential endangerment or effects to the environment, the definition of spatial and temporal extent of contamination, development of criteria for remediation, or evaluation of ecological effects of the remedial alternatives.

3.0 Hazard Identification

3.1 Site Characterization

This section shall:

3.1.1 identify the nature, extent, and sources of contamination through the various exposure pathways of concern.

3.1.2 describe the topography, hydrology, and other physical, spatial, or other features of ecological interest at and adjoining the site.

3.1.3 discuss the habitat types and associated species found or expected at or adjacent to the site, or that would otherwise be expected to be affected by contamination from the site.

3.1.4 highlight any species that are federally endangered or threatened, of special concern to the State, that are Trustee resources, or other species of interest (i.e., of particular economic or social importance).

3.2 Selection of Contaminants of Concern, Indicator Species and Endpoints

This section shall:

3.2.1 list the contaminants that have been selected. Summarize the criteria for selection of contaminants of concern, and briefly discuss the relationship between each selected compound and the factors considered during selection. Factors to be addressed include, but are not limited to, persistence, bioaccumulation, biomagnification, toxicity, frequency of detection, and concentrations detected and the relationship of these concentrations to a control or "background".

3.2.2 describe the indicator species and endpoints which have been selected. Discuss the criteria for selection, and how those species and endpoints relate to the criteria. These criteria include but are not limited to the importance and position of the species within the ecosystem, sensitivity, seasonality, relevance to the specific ecosystem found at the site and to human beneficial uses, Trustee or regulatory

concerns, and availability of practical methods for prediction and measurement.

4.0 Exposure Assessment

4.1 Source Characterization and Selection of Exposure Pathways

This section shall summarize the source areas of concern and discuss for each area (and, if necessary, by type of contaminants) by indicator species, what exposure pathways will be of concern and considered for further analysis.

4.2 Fate and Transport Analysis

This section shall include site-specific data, applicable models, and information available through the literature.

4.3 Exposure Scenarios and Integrated Exposure Analysis

This section shall determine the exposure scenarios applicable given the selected exposure pathways, chemicals of concern, indicator species, and endpoints. Take into account spatial and temporal variations in exposure, mechanisms of migration, points of exposure, behavioral adaptations, and population characteristics. If a food web or other complex model is to be constructed, discuss the relationships established between the various species and trophic levels represented in the food web (for example, k of dietary uptake, BCFS, BMFS, duration of exposure).

4.4 Uncertainty Analysis

5.0 Toxicity Assessment

5.1 Hazard Identification

This section shall identify the potential toxic endpoints of the chemicals of concern upon the indicator species.

5.2 Quantitative Dose-Response Assessment

This section shall:

5.2.1 evaluate both literature/laboratory data, as well as site-specific data where available.

5.2.2 present any applicable benchmark values available for comparison with site conditions. These benchmarks shall include ARARs (where available), sediment quality criteria, equilibrium partitioning values, or other published or peer reviewed values.

5.3 Uncertainty Analysis

6.0 Risk Characteristics

6.1 Selection of Risk Assessment Characterization Methodology

6.2 Presentation of Risk Assessment Characterization

This section shall:

6.2.1 Provide narrative and tabular summaries of the risk predictions by exposure pathway and by indicator species; and evaluate both single and multiple chemical effects where applicable. Note specific spatial or temporal distributions if risk is estimated.

6.2.2 Discuss and quantify (where possible) risks at the community and ecosystem level.

6.3 Uncertainty Analysis

6.4 Conclusions

7.0 References

8.0 Appendices

8.1 Data

8.2 Documentation

8.3 Toxicity Profiles for Chemicals of Concern

Once the draft Risk Assessment document has been reviewed by EPA and ME DEP, a revised draft Risk Assessment document may be warranted. The revised draft report shall follow the same format as the draft report and shall address all comments provided by EPA, after providing reasonable opportunity for review and comment by ME DEP.

SECTION 8: NON-TIME CRITICAL REMOVAL ACTION REQUIREMENTS

If, at any time during the RI/FS process, EPA determines that an EE/CA should be performed at the Site in preparation for a NTCRA, the Respondent shall conduct an EE/CA concurrently with the RI/FS. The Respondent shall conduct one or more EE/CAs at the Site, as determined to be appropriate by EPA. The main objectives of the EE/CA are to:

1. identify the objectives of the NTCRA; and

2. analyze the effectiveness, implementability and cost of various alternatives that may satisfy these objectives.

The EE/CA may also include field investigations, if the available information is not sufficient to perform the analysis of the alternatives required to ensure that the NTCRA is consistent with the NCP.

After conducting all necessary field investigations and analyses, the Respondent shall submit the results in an initial Draft EE/CA Report. Following EPA comments on the initial Draft

EE/CA Report, the Respondent shall prepare a revised Draft EE/CA Report incorporating all EPA comments and requested changes. Depending on Site conditions, the acceptability of the revised Draft EE/CA Report, or other conditions, EPA may either request additional Draft EE/CA reports, until a Final EE/CA report is produced which EPA determines is satisfactory for public comment, or EPA may choose to complete the document. The approval process shall be pursuant to Section X in the Settlement Agreement.

After EPA conducts a public comment period on the Final EE/CA Report, the Respondent shall also assist EPA in preparing a responsiveness summary consistent with the requirements in Section 6. After the public comment period, EPA will issue its decision on the final selection of the appropriate NTCRA in an Action Memorandum.

The Respondent may elect to perform all activities described in the Action Memorandum as a non-time critical removal action, consistent with the-following guidance documents:

1. Guidance on Implementation of the Superfund Accelerated Cleanup Model (SACM) under CERCLA and the NCP (EPA OSWER Directive No. 9203.1-03, July 7, 1992);

2. Early Action and Long-Term Action Under SACM - Interim Guidance (EPA OSWER Directive No. 9203.1-051, December 1992); and

3. Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA (EPA/540-R-93-057, OSWER Directive No.9360.0-32, August 1993).

If Respondent agrees to perform the NTCRA, they shall notify EPA in writing of their decision within 30 days of the date EPA issues the Action Memorandum, and shall submit a Non-Time Critical Removal Action Work Plan to EPA for approval within 60 days of the date EPA issues the Action Memorandum, unless EPA determines that Respondent needs more time to complete the Work Plan. A copy of this plan shall be submitted to ME DEP for review and comment. The approval process for the Work Plan shall be pursuant to Section X in the Settlement Agreement. Upon approval, the Respondent shall perform the NTCRA pursuant to the Work Plan and under the terms of the Settlement Agreement.

Nothing in this Settlement Agreement or Scope of Work shall be construed to limit EPA's authority to require Respondent to perform the NTCRA.

SECTION 9: REUSE ASSESSMENT

If EPA, in its sole discretion, determines that a Reuse Assessment is necessary, Respondent will perform the Reuse Assessment in accordance with the SOW, RI/FS Work Plan, and applicable guidance. The Reuse Assessment should provide sufficient information to develop realistic assumptions of the reasonably anticipated future uses for the Site. Respondent shall prepare the

Reuse Assessment in accordance with EPA guidance, including, but not limited to: "Reuse Assessments: A Tool To Implement The Superfund Land Use Directive," OSWER Directive 9355.7-06P, June 4, 2001 or subsequently issued guidance.

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Maine Central Railroad Company
c/o Robert B. Culliford, Esq.
Pan Am Railways
1700 Iron Horse Park
North Billerica, MA 01862

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7012 1010 0003 6750 3679

PS Form 3811, July 2013 Domestic Return Receipt

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4® in this box

Maximilan Boal, OES04-2
U.S. EPA
5 Post Office Square, Suite 100
Boston, MA 02109-3912

42

7012 1010 0003 6750 3679

CERTIFIED MAIL™ RECEIPT

(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	

SEP 18 2014 Postmark Here

Total Post

Maine Central Railroad Company
c/o Robert B. Culliford, Esq.
Pan Am Railways
1700 Iron Horse Park
North Billerica, MA 01862

Sent To

Street, Apt. or PO Box

City, State,

Certified Mail Provides:

- A mailing receipt
- A unique identifier for your mailpiece
- A record of delivery kept by the Postal Service for two years

Important Reminders:

- Certified Mail may ONLY be combined with First-Class Mail® or Priority Mail®.
- Certified Mail is *not* available for any class of international mail.
- NO INSURANCE COVERAGE IS PROVIDED with Certified Mail. For valuables, please consider Insured or Registered Mail.
- For an additional fee, a *Return Receipt* may be requested to provide proof of delivery. To obtain Return Receipt service, please complete and attach a Return Receipt (PS Form 3811) to the article and add applicable postage to cover the fee. Endorse mailpiece "Return Receipt Requested". To receive a fee waiver for a duplicate return receipt, a USPS® postmark on your Certified Mail receipt is required.
- For an additional fee, delivery may be restricted to the addressee or addressee's authorized agent. Advise the clerk or mark the mailpiece with the endorsement *"Restricted Delivery"*.
- If a postmark on the Certified Mail receipt is desired, please present the article at the post office for postmarking. If a postmark on the Certified Mail receipt is not needed, detach and affix label with postage and mail.

IMPORTANT: Save this receipt and present it when making an inquiry.

PS Form 3800, August 2006 *(Reverse)* PSN 7530-02-000-9047